





SUPPLEMENT No. 2.

THE
BIRDS
OF
AUSTRALIA

CHECK LIST
OF THE
BIRDS OF AUSTRALIA

PART 2.

ORDER PASSERIFORMES (PART).

Showing under each genus and species every synonym at present known to the Author, with references to coloured plates in this work and in Gould's folio Birds of Australia.

BY
GREGORY M. MATHEWS
F.R.S.E., Etc.

H. F. & G. WITHERBY
326 HIGH HOLBORN LONDON

1923

f GL
693
M42
1916
v. 10
suppl. 2
C. 2
SCN HRE

CORRECTIONS TO MY CHECK LIST.

PART I.

- No. 1. Add to the synonymy *Dromiceius novæhollandiæ gunni* Mathews, Austral Av. Rec., Vol. IV., pt. 7, p. 175, March 7th, 1922. Substitute name for *D. diemenensis* Le Souëf, 1907.
- No. 2. For *Peronista peroni* read *Peronista diemenianus*.
Casuarius diemenianus Jennings, Ornith., p. 382, Nov. 1827: Kangaroo Island.
- No. 5. For *Eudyptes serresianus* read *Eudyptes cristatus*.
Aptenodytes crestata (sic) Miller, Var. subj. Nat. Hist., pt. 9, pl. 49, 1784: Falkland Islands.
- No. 7. Add to the synonymy *Megapodius tumulator* Anon., Ann. Mag. Nat. Hist., ser. 1, Vol. IX., No. 58, p. 339, June 1842:—
Megapodius tumulorum, id., ib.
Megapodius tumulificus, id., ib.
All alternative names for *Megapodius tumulus* Gould.
- P. 5. To genus XII. add *Ortyx* Oken, Lehrb. der Nat. III. Zool., p. 611, 1816. New name for *Turnix*.
- No. 8. Add to the synonymy *Leipoa penicillata* "Old Bushman" (=W. H. Wheelwright), Bush Wander. Nat., p. 272, 1861, *nude* name.
- No. 16. For *Austroturnix pyrrhothorax* read *Alphaturnia pyrrhothorax*, and put after No. 18.
- No. 19. Add to the synonymy *Pedionomus ocellatus* Pomper, Die Säug. Vögel u Amphib., p. 33 (pref. March), 1841, *nude* name.
- No. 21. Add to the synonymy *Ptilinopus regina yorki* Mathews, Austral Av. Rec., Vol. V., pt. 1., p. 1, July 17th, 1922: Cape York;
and read as a separate species *Ptilinopus ewingi* Gould.
- No. 22. For *Lamprotreron superba* read *Ptilinopus superbus*.
- No. 37. Add to the synonymy *Geophaps scripta peninsulæ* H. L. White, Emu, Vol. XXI., pt. III., p. 163, Jan. 14th, 1922: Cape York.
- No. 45. For *melvillensis* read *melvilli*.
- No. 48. Add to the synonymy of *Porzana palustris* Gould, *Rallus minor* Cotton, Tasm. Journ. Nat. Sc., Vol. III., p. 364, 1848, *nude* name.
- To Genus XLIII. add *Gallinula* Swainson, Illustr. Zool., 1st ser., text to pl. 173, Sept. 1821.
Type (by original designation) *Rallus porzana* Linné. Not *Gallinula* Brisson, Ornith., Vol. VI., p. 2, 1760.
- Genus XLIV. Read *Zaporina* Forster, Pocket Encycl. Nat. Phen., p. 418, 1827. Type (by monotypy) "Little Crane" = *Rallus parvus* Scopoli.

LIST OF BIRDS OF AUSTRALIA.

Genus XLV. Delete *Gallinula*, etc.

Genus LIII. Read *Colymbus* Brisson, Ornith., Vol. I., p. 50, Vol. VI., p. 33, 1760. Type (by tautonymy) *Colymbus* and (by subsequent designation, Reichenbach, Nat. Syst. Vögel, p. iii, 1852 (1853).) *Colymbus cristatus* Brisson, both of which equal *Colymbus cristatus* Linné.

No. 59. For *Tachybaptus ruficollis* read *Poliiocephalus ruficollis*.

Genus LVII. Read *Garrodia* Forbes, Coll. Scient. pap. Garrod, 1881 (pref. Jan. 24th), p. 521, footnote. Type (by original designation) *T. nereis*.

No. 65. For *Reinholdia reinholdi* read *Reinholdia gavia*.

Procellaria gavia Forster, Descr. Anim. ed. Licht., p. 148 (pref. Jan. 1st), 1844 : Queen Charlotte's Sound, New Zealand ;

and add to the synonymy *Reinholdia reinholdi montaguei* Mathews, Austral Av. Rec., Vol. V., pt. I., p. 2, July 17th, 1922 : New Caledonia.

No. 73. For *Cookkilaria cookii* read *Cookkilaria leucoptera*. The former does not occur in Australia. Add to the synonymy of *Procellaria conspicillata* Gould, *Procellaria perspicillata*, ex Eyre's Journ. Exped. Centr. Austr., Vol. I., p. 447, 1845, *nude name*.

Genus LXIX. For *Petrella* read *Daption* ;

and add to the synonymy *Calopetes* Sundervall, Meth. Nat. Av. Disp. Tent., p. 142 (before June 12th), 1873. New name for *Daption*.

No. 76. Add to the synonymy *Halobaena murphyi* Brooks, Bull. Mus. Comp. Zool. Harv., Vol. 61, p. 146, June 1917 : South Georgia.

No. 84. For *Thalassogeron chlororhynchus bassi* read *Diomedea bassi* Mathews, Nov. Zool., Vol. XVIII., p. 206, June 31st, 1912 : New South Wales.

No. 97. Add to the synonymy *Onychoprion fuscatus glauerti* Mathews, Bull. Brit. Ornith. Club, Vol. 43, p. 14, Oct. 27th, 1922 : West Australia ;
and read *Sterna gouldii* Reichenbach, Synops. Avium Icones, pl. xxii., fig. 829, 1845 : New South Wales.

No. 102. Add to the synonymy *Larus erythrorhynchus* Burton, Cat. Coll. Mamm. Birds, Fort Pitt, Chatham, p. 46 (pref. April 1st), 1838 : New South Wales.

Larus australis Reichenbach, Synops. Av. Icones, based on pl. LXV B, fig. 1077, 1845 : New South Wales.

No. 108. For *Hæmatopus niger* read *Hæmatopus unicolor* Forster, Descr. Anim. ed. Licht. (pref. Jan.), 1844 : New Zealand.

No. 111. Add to the synonymy of *Lobivanellus personatus* Gould, *Lobivanellus minor* Cotton, as above, p. 364, *nude name*.

No. 115. For *Cirrepidesmus bicinctus* read *Nesoceyx bicinctus*.

Genus CVIII. Read *Leptorhynchus* Du Bus, L'Institut, Vol. III., No. 103, p. 138, April 29th, 1835.

No. 123. Read *Leptorhynchus pectoralis* Du Bus, *ib.*

No. 132. Add to the synonymy *Tringa hypoleucoides* Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 44, Feb. 21st, 1923. Substitute name for *T. hypoleucus* Linné.

CORRECTIONS TO MY CHECK-LIST.

- No. 136. For *Crocethia leucophæa* read *Crocethia alba*.
Trynga alba Vroeg (ex Pallas MS.), Catal. d'Ois., adumb. p. 7 (before Sept. 22nd), 1764: Europe.
- No. 139. For *Erolia ferruginea* read *Erolia testacea*.
Scolopax testacea Vroeg (as above), p. 6: Europe.
- Genus CXXV. For *Canutus* read *Calidris*, same author and reference.
- No. 140. For *Canutus canutus* read *Calidris canutus*.
- Genus CXXIII. Add to synonymy *Pratincola* Pennant, Brit. Zool., 4th ed. (4to), p. 648; 8vo ed. p. 759, 1776. Type (by monotypy) *Pratincola krameria* Pennant = *Hirundo pratincola* Linné.
- No. 165. Add to the synonymy *Ardea solitaria* Cotton, as above, p. 364, *nude name*.
- No. 176. Add to the synonymy *Chenogeranus australis* Brown, Rep. Council, Manchester Nat. Hist. Soc., p. 4, Jan. 1842, *nude name*.
- Genus CLXIX. Add to the synonymy *Rhynchoplatus* Berthold, Naturl. Fam. Thierr. (Latreille), p. 84, 1827 (pref. Aug. 30th, 1826). Type (by monotypy) *Anas clypeata* Linné.
- No. 192. Add to the synonymy *Nyroca fusca* Cotton, as above, p. 365, *nude name*.
- No. 196. For *Hypoleucus varius* read *Hypoleucus perthi*, as being a distinct species from *H. varius*.
- No. 202. Read *Sulita serrator* as of Gray in Dieffenbach's Travels New Zealand, Vol. II., App., p. 20 (middle March), 1843, for the Australian bird.
- No. 209. For *Circus approximans* read *Circus juxta*, Peale same reference, but p. xv.; and to the synonymy of *Circus gouldi* Bp. add *Astur palustris* Cotton as above, p. 361, *nude name*.
- No. 212. Add to the synonymy *Falco camus* Strickland, Ornith. Syn., p. 111, Nov. 1st, 1855.
- No. 213. Add to the synonymy *Falco striatus*, id., ib.
- Genus CXCIV. For the authority of *Blagrus* read Blyth, Journ. As. Soc. Bengal, Vol. XV., p. 369, 1846. Type (by monotypy) *Blagrus dimidiatus* (Raffles) = *Falco leucogaster* Gmelin.
- No. 217. Add to the synonymy *Falco aquilus* Strickland as above, p. 53.
- Genus CXCI. For *Gypoictinia* read *Hamirostra* Brown, Illustr. Gen. Birds, pt. 8, April 3rd, 1846. Type (by monotypy) *H. montana*.
- No. 222. For *Gypoictinia melanosterna* read *Hamirostra melanosterna*; and add to the synonymy *H. montana* Brown, *ib.*: South-west Australia.
- No. 226. Add to the synonymy *Falco subbuteoides* Strickland as above, p. 89.
- No. 232. Add to the synonymy *Pandion hallætos* var. *australis* Burmeister, Verz. Zool. Mus. Halle, p. 24, 1850 (after March 15th, pref. and before Sept. 15th). New name for *P. leucocephalus* Gould.
- No. 233. Add to the synonymy *Strix novæhollandiæ* Strickland as above, p. 165.
- No. 252. Add to the synonymy *Psittacus niger* Jennings, Ornith., p. 399, Nov. 1827. New name for *P. cookii* Temminck, 1821 (not *Psittacus niger* of Gmelin, p. 336, 1788).

LIST OF BIRDS OF AUSTRALIA.

- No. 281. Add to the synonymy *Psephotus narethæ* H. L. White, Emu, Vol. 21, pt. 2, p. 81, Oct. 1921 : Naretha, East of West Australia.
- Genus CCLII. Read *Ægotheles* Vigors and Horsfield, Trans. Linn. Soc., Vol. XV., pt. 1., p. 194, Feb. 17th, 1826. Type (by monotypy) *Caprimulgus cristatus* White.
- Genus CCLIII. Read *Hirundolanius* Buller, Man. Birds, New Zealand, p. 7 (pref. Jan. 2nd), 1882. Type (by monotypy) *H. cæruleus*.
- No. 301. Add to the synonymy *Hirundolanius cæruleus* Buller, *ib.* : Westport, New Zealand.
- No. 305. For *Dacelo gigas* read *Dacelo novæguineæ*.
Alcedo novæguineæ Hermann, Tab. Aff. Anim., p. 192, 1783 : New South Wales.
- Genus CCLXVI. Add to the synonymy *Pallenia* Bonaparte, Cat. Ois. d'Eur. (Parzudaki), p. 25 (before Nov. 10th), 1856. Type (by monotypy) *P. caudacuta* (Latham).
- Genus CCLXVII. Add to the synonymy *Apodium* Rafinesque, Princ. fond. Somiol., p. 29, 1814. New name for *Apus* Cuv.=Scopoli.
- No. 321. For *Cacomantis rubricatus* read *Cacomantis rufulus*.
- No. 323. Add to the synonymy *Vidgenia yorki* Mathews, Austral Av. Rec., Vol. 5, pt. 1., p. 4, July 17th, 1922 : Cape York.
- No. 332. Add to the synonymy *Polophilus phasianinus highami* Mathews, Bull. Brit. Orn. Club, Vol. XLIII., p. 13, Oct. 27th, 1922 : Ashburton River, Mid-west Australia.
- No. 333. Add to the synonymy *Menura edwardi* Chisholm, Emu, Vol. XX., pt. iv., p. 223, April 23rd, 1921 : Stanhope, South Queensland
- P. 109. For *Fregettornis* read *Cymodroma* Ridgway. Type (by monotypy) *P. grallaria* Vieillot.
- Type designation and the designation of the type locality of species and subspecies in this work can be accepted unless proved wrong.

The following men described the species in this part of the List.

Gould, 131.	Milligan, 3.	Iredale.
Latham, 43.	Dumont, 2.	Jardine.
Vigors and Horsfield, 18	Hartert, 2.	King.
Mathews, 14.	Jardine and Selby, 2.	Kittlitz.
Vieillot, 12.	Lewin, 2.	Masters.
Ramsay, 9.	Lesson et Garnot, 2.	McCoy.
Quoy et Gaimard, 7.	Reichenbach, 2.	Muller.
North, 5.	Shaw and Modder, 2.	Paykull.
Shaw, 5.	Ashby.	Ranzani.
Swainson, 5.	Bechstein.	Rüppell.
Temminck et Laugier, 5.	Blyth.	Salvadori.
De Vis, 4.	Castelnau and Ramsay.	Salvadori and D'Albertis.
Gmelin, 4.	Daudin.	Sharpe.
Dr. J. White, 4.	Drapier.	Stephens.
Campbell, 3.	Hall.	Wallace.
Gray, 3.	Hartlaub.	Weatherill.
Lesson, 3.	Horsfield.	H. L. White.
Linné, 3.	Hombron et Jacquinot.	

APPENDIX.

The following are the dates of the works in which the names appear : a * indicates that Mr. T. Iredale and a † Mr. T. Carter are part authors.

1907.

Exhibition of a series of paintings of Queensland Birds.
Bulletin of the British Ornithologists' Club, Vol. XXI., pp. 13-14, Oct. 29th.

1908.

Handlist of the Birds of Australasia.
Emu, Vol. VII., Supplement and Index, pp. 1-123, January 1st.
On a new species of Wren from North-west Australia.
Bulletin of the British Ornithologists' Club, Vol. XXI., pp. 100-101, May 30th.
Remarks on the difference between *Ptistes erythropterus* (Gmelin) and *Ptistes coccineopterus* Gould.
Bulletin of the British Ornithologists' Club, Vol. XXI., p. 110, July 1st.
A note on *Oreoscopus gutturalis*.
Emu, Vol. VIII., p. 34, plate A, July 1st.
Exhibition of a new species of Waxbill.
Bulletin of the British Ornithologists' Club, Vol. XXIII., pp. 24-25, November 6th.

1909.

Notes on *Malurus dulcis*.
Emu, Vol. VIII., pp. 113-114, Plate B, January 1st.
On the Birds of North-west Australia, Part I.
Emu, Vol. IX., pp. 1-16, July 12th.
On the Birds of North-west Australia, Part II.
The Birds of the Alexander District, Northern Territory.
Emu, Vol. IX., pp. 53-69, October 1st.
Additions to the Handlist of the Birds of Australasia.
Emu, Vol. IX., p. 92, October 1st.
Forgotten Feathers,
Emu, Vol. IX., p. 98, October 1st.
Description of two new subspecies of Australian Birds.
On changes in the Nomenclature of certain Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XXV., p. 24, Nov. 30th.

1910.

Addition to the Handlist of the Birds of Australasia.
Remarks on *Dromæus peroni* Rothschild versus *D. parvulus* Gould.
On a new subspecies of Grass-Wren.
Bulletin of the British Ornithologists' Club, Vol. XXV., p. 34, January 1st.
On a new subspecies of Honey-eater from Tasmania.
Bulletin of the British Ornithologists' Club, Vol. XXV., p. 85, March 31st.
A List of Birds observed on Parry's Creek, North-west Australia.
Remarks on *Eopsaltria jacksoni*.
Emu, Vol. IX., pp. 238-241, and p. 246, April 1st.
On a new subspecies of Honey-eater from Tasmania.
Remarks on an example of *Meliphaga phrygia* from Tasmania.
Bulletin of the British Ornithologist's Club, Vol. XXV., p. 100, May 12th.
Note on *Rhipidura phasiana*,
Emu, Vol. X., p. 1, Plate C, July 1st.
Additions to the Handlist of the Birds of Australia.
Emu, Vol. X., p. 57, July 1st.

LIST OF BIRDS OF AUSTRALIA.

- Remarks on the Ornithological Congress at Berlin.
Bulletin of the British Ornithologists' Club, Vol. XXV., pp. 117-118, July 2nd.
- Birds of Australia, Vol. I., part 1, October 31st.
Reviewed Ibis, 1911, pp. 176-178 ; Auk, 1911, pp. 135-136.
- On the Birds of North-west Australia, Part III.
Emu, Vol. X., pp. 103-110, October 1st.
- On a new subspecies of Creeper from the Warren River, S.W. Australia.
- On a new species of Ground Bird from West Australia.
Bulletin of the British Ornithologists' Club, Vol. XXVII., pp. 16-17, November 4th.
- On a new subspecies of Weaver Finch from Northern Territory.
- On a new subspecies of Parroquet from Broome Bay, North-west Australia.
Bulletin of the British Ornithologists' Club, Vol. XXVII., p. 28, December 1st.
- On some necessary alterations in the Nomenclature of Birds.
- Notes on *Meliornis novæhollandiæ*.
Novitates Zoologicæ, Vol. XVII., pp. 492-503, December.
- On a new subspecies of Shearwater from Sunday Island, Kermadecs.
- Remarks on *Eopsaltria hilli* Campbell.
Bulletin of the British Ornithologists' Club, Vol. XXVII., pp. 40-41, December 31st.

1911.

- On a new subspecies of Grass-Wren from West Australia.
Bulletin of the British Ornithologists' Club, Vol. XXVII., p. 48, January 23rd.
- Birds of Australia, Vol. I., pt. 2, January 31st.
Reviewed Ibis, 1911, pp. 391-392 ; Auk, 1911, p. 289.
- On a new subspecies of Owl from North Queensland.
- On a new subspecies of Squeaker from Leigh's Creek, South Australia.
Bulletin of the British Ornithologists' Club, Vol. XXVII., p. 62, March 3rd.
- On a new subspecies of Grass Finch from North-west Australia.
Bulletin of the British Ornithologists' Club, Vol. XXVII., p. 68, March 28th.
- Alterations in the Nomenclature of "Handlist of the Birds of Australia."
- Description of the nest and eggs of *Gerygone cinerascens*.
Emu, Vol. X., pp. 317-326, 341, April 1st.
- Description of two new subspecies of Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XXVII., p. 87, April 27th.
- Birds of Australia, Vol. I., pt. 3, April 29th.
Reviewed Ibis, 1911, pp. 570-571 ; Auk, 1911, p. 376.
- Remarks on *Poëphila aurantirostris*.
- Description of new subspecies of Australian Birds.
- On a new name for *Acanthiza tenuirostris* Zeitz.
Bulletin of the British Ornithologists' Club, Vol. XXVII., pp. 95-97, May 26th.
- On some necessary alterations in the Nomenclature of Birds, Part II.
- Two new Australian Birds.
Novitates Zoologicæ, Vol. XVIII., pp. 1-23, June.
- Nomenclature of Australian Avifauna.
Emu, Vol. XI., pp. 52-58, July 1st.
- Descriptions of new species and subspecies of Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XXVII., pp. 99-101, July 13th.
- Birds of Australia, Vol. I., pt. 4, August 9th.
Reviewed Ibis 1911, pp. 764-765 ; Auk, 1911, pp. 503-504.
- Notes on *Falcunculus frontatus whitei*.
Emu, Vol. XI., p. 105, Plate D, October 1st.
- Birds of Australia, Vol. I., pt. 5, October 31st.
Reviewed Ibis 1912, pp. 197-199 ; Auk 1912, pp. 124-125.

APPENDIX.

1912.

Remarks on Brisson's Genera.

Ibis, pp. 212-215, January 1st.

Austral Avian Record, Vol. I., pt. 1., January 2nd.

Notes on Australian Cuckoos.

Dates of Issue of Lear's Psittacidae and Müller's Nat. Gesch. Land- en Volk.

Birds of Australia, Vol. I., pt. 6, January 31st.

Reviewed Ibis, 1912, pp. 675-676 ; Auk, 1912, pp. 549-551.

A Reference List to the Birds of Australia.

A List of the Birds of the Phillipian sub-region.

Index to above.

Novitatis Zoologicae, Vol. XVIII., pp. 171-455 ; 627-656, January 21st.

Notes on Shaw's Zoology of Holland, 1794.

Emu, Vol. XI., pp. 255-257, April 1st.

Austral Avian Record, Vol. I., pt. 2, April 2nd.

Additions to the Reference List to the Birds of Australia.

Descriptions of some eggs of Australian Birds.

*Perry's Arcana. An overlooked work.

Victorian Naturalist, Vol. 29, pt. 1., pp. 7-16, May 9th.

Birds of Australia, Vol. II., pt. 1, May 30th.

Reviewed Ibis, 1912, pp. 673-676 ; Auk, 1912, pp. 549-551.

Austral Avian Record, Vol. I., pt. 3, June 28th.

Notes on the Australian Cassowary.

Notes on Diggles's New Species of Australian Birds.

Additions to the Reference List to the Birds of Australia.

Notes on Lewin's Birds of New Holland, 1808.

Emu, Vol. XII., pp. 49-51, July 1st.

On the late J. G. Keulemans.

British Birds, Vol. VI., pt. 2, July 1st.

Birds of Australia, Vol. II., pt. 2, July 31st.

Reviewed Ibis, 1912, pp. 673-676 ; Auk, 1912, pp. 549-551.

Austral Avian Record, Vol. I., pt. 4, September 18th.

Additions to the Reference List to the Birds of Australia.

On the Generic name of the Barn Owl.

Birds of Australia, Vol. II., pt. 3, September 20th.

Reviewed Ibis, 1913, pp. 147-148 ; Auk, 1913, pp. 124-125.

Birds of Australia, Vol. II., pt. 4, November 1st.

Reviewed Ibis, 1913, pp. 147-148 ; Auk, 1913, pp. 124-125.

Austral Avian Record, Vol. I., pt. 5, December 24th.

New Generic names and additions to the Reference List to the Birds of Australia.

Geographic relationship of the Birds of Lord Howe, Norfolk and Kermadec Islands.

A new Bird for Australia ; A Changed Name ; New Birds ; Substitute-names ; Additional Notes.

1913.

On the generic names *Ibis* and *Egatheus*.

Auk, Vol. XXX., pp. 92-95, January 1st.

Notes on *Epthianura lovensis*.

Emu, Vol. XII., pp. 204-206, Plate E, January 1st.

Birds of Australia, Vol. II., p. 5, January 31st.

Reviewed Auk, 1913, pp. 443-445.

Remarks on the type of *Psephotus assimilis* Collett.

Bulletin of the British Ornithologists' Club, Vol. XXXI., pp. 55-56, Feb. 27th.

LIST OF BIRDS OF AUSTRALIA.

- Austral Avian Record, Vol. I., parts 6 and 7, February 28th.
A List of the Species of Australian Birds, described by John Gould, with the location of the type specimens (with W. Stone).
- Austral Avian Record, Vol. I., part 8, March 20th.
Additional species described by John Gould (with W. Stone).
The genus name *Meliphaga*.
Additions to the Reference List to the Birds of Australia.
New Genera.
- Description of new subspecies of Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XXXI., p. 68, March 29th.
- The Hooded Parrakeet.
Avicultural Magazine, Vol. IV. (3rd Series), pp. 151-153, March.
- *A Reference List of the Birds of New Zealand.
Ibis, pp. 201-263, April 1st and pp. 402-452, July 1st.
- Birds of Australia, Vol. III., pt. 1, April 2nd.
Reviewed Auk, 1913, pp. 443-445.
- Birds of Australia, Vol. III., pt. 2, May 2nd.
Reviewed Ibis, 1913, pp. 692-694 ; Auk, 1913, pp. 443-445.
- Austral Avian Record, Vol. II., pt. 1., August 2nd.
Additions to the Reference List of the Birds of Australia.
Notes on *Mattingleya inornata*.
New Genera and Species.
- Birds of Australia, Vol. III., pt. 3, August 18th.
Reviewed Ibis, 1914, pp. 145-147 ; Auk, 1913, pp. 596-597.
- Austral Avian Record, Vol. II., parts 2 and 3, October 23rd.
*Notes on Billberg.
Dates of Publication of Plates of the Ornithology of the Coquille.
New Generic Names and Additions to the Reference List of the Birds of Australia.
- Austral Avian Record, Vol. II., part 4, December 24th.
New Species and Subspecies of Australian Birds.
- A List of the Birds of Australia, December 31st.
- Birds of Australia, Vol. III., part 4, December 31st.
Reviewed Ibis, 1914, pp. 514-515 ; Auk, 1914, p. 267.
- 1914.
- Notes on some Binary Generic Names.
Auk, Vol. XXXI., pp. 86-91, January 1st.
- A List of the Birds of Melville Island, Northern Territory, Australia.
Ibis, pp. 91-132, January 1st.
- Birds of Australia, Vol. III., pt. 5, March 26th.
Reviewed Ibis, 1914, pp. 514-515 ; Auk, 1914, p. 410.
- *Description of a strange New Zealand Woodhen.
Ibis, pp. 293-297, with plate, April 1st.
- Additions to a List of the Birds of Australia.
- Notes on *Platycereus hæmatogaster* Gould, pp. 12-13.
South Australian Ornithologist, Vol. I., pt. 2, pp. 15-17, April 1st.
- Birds of Australia, Vol. III., pt. 6, June 25th.
Reviewed Ibis, 1915, pp. 171-172 ; Auk, 1914, p. 552.
- Notes on two new Genera of Parrots for Australia.
- Three New Subspecies of Birds.
Emu, Vol. XIV., p. 1, Plate F and p. 60, July 1st.
- Notes on the new Genera of Parrots.
South Australian Ornithologist, Vol. I., pt. 3, p. 18, July 1st.

APPENDIX.

- Austral Avian Record, Vol. II., pt. 5, September 24th.
Additions to the List of the Birds of Australia.
New Genera.
*Notes on some birds from Kermadec Islands.
Plumage changes of *Elseyornis melanops*.
Birds of Australia, Vol. IV., pt. 1, October 6th.
Reviewed Ibis, 1915, pp. 171-172 ; Auk, 1915, p. 116.
Austral Avian Record, Vol. II., pt. 6, December 19th.
Notes on the genus *Fregata*.
Remarks on *Aphelocephala pectoralis* (Gould) and *A. nigrocincta* North.
Remarks and Notes on New Frigate Birds.
Bulletin British Ornithologists' Club, Vol. XXXV., pp. 35-37, Dec. 29th.
- 1915.
- Notes on a recent ornithological discovery in Australia.
Ibis, pp. 76-85, January 1st.
Birds of the Cairns District, Queensland, Part I.
South Australian Ornithologist, Vol. 2, pt. 1., pp. 15-20, January 1st.
Austral Avian Record, Vol. II., pt. 7, January 28th.
Additions to the List of the Birds of Australia.
Notes on some Australian Types.
Diggles and his Works.
Dates of Publication of Vieillot Galerie des Oiseaux.
Birds of Australia, Vol. IV., pt. 2, Feb. 17th.
Reviewed Ibis, 1915, pp. 624-625 ; Auk, 1915, pp. 512-513.
Discussion on "Coloration as a Factor in Family and Generic Differentiation."
Bulletin of the British Ornithologists' Club, Vol. XXXV., pp. 81-82, Feb. 27th.
Remarks on *Phaethon catesbyi*.
Auk, Vol. XXXII., pp. 195-197, April 1st.
Birds of the Cairns District, Queensland.
South Australian Ornithologist, Vol. 2, pt. 2, pp. 29-33, April 1st.
Description of the eggs of some Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XXXV., p. 121, May 26th.
Birds of Australia, Vol. IV., pt. 3, June 23rd.
Reviewed Ibis, 1915, pp. 789-791 ; Auk, 1915, pp. 512-513.
Austral Avian Record, Vol. III., pt. 1., June 30th.
Notes on *Columba pallida* Latham.
*On the Ornithology of the Dictionnaire des Sciences Naturelles (Levrault).
Notes on *Raperia godmanæ* and two new subspecies of birds.
Birds of the Cairns District, Queensland.
South Australian Ornithologist, Vol. 2, pt. 3, pp. 56-62, July 1st.
*On some Petrels from the North-east Pacific Ocean.
Ibis, pp. 572-609, July 1st.
Notes on Lewin's Birds of New South Wales.
Emu, Vol. XV., p. 33, July 1st.
Austral Avian Record, Vol. II., pt. 8, Aug. 16th.
Index to Vols. I. and II.
Birds of the North and North-west of Australia.
South Australian Ornithologist, Vol. 2, pt. 4, pp. 83-87, Oct. 1st.
The admission of Colour Genera.
Emu, Vol. XV., pp. 118-130, October.
Birds of Australia, Vol. V., pt. 1, November 5th.
Reviewed Ibis, 1916, pp. 171-172 ; Auk, 1916, p. 91.

LIST OF BIRDS OF AUSTRALIA.

Austral Avian Record, Vol. III., pt. 2, November 19th.

Notes on *Certhia atricapilla* Latham.

*Notes on "Table des Planches Enlum." Boddaert.

Additions to the Reference List to the Birds of Australia.

Notes on *Pluvialis dominicus fulvus*.

1916.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 2, pt 5, pp. 109-113, January 1st.

Remarks on the proposed Second Edition of the Official Check-List of the Birds of Australia

Emu, Vol. XV., pp. 171-176, January 1st.

Description of a new subspecies of Petrel from Australia.

Bulletin of the British Ornithologists' Club, Vol. XXXVI., p. 48, Feb. 3rd.

Description of a new subspecies of Kingfisher from Queensland.

Bulletin of the British Ornithologists' Club, Vol. XXXVI., p. 61, Feb. 22nd.

Birds of Australia, Vol. V., pt. 2, Feb. 29th.

Reviewed Ibis, 1916, pp. 510-511 ; Auk, 1916, p. 336.

On some New Guinea Bird Names.

Ibis, pp. 295-313, April 1st.

Austral Avian Record, Vol. III., pt. 3, April 7th.

Additions to the List of the Birds of Australia.

Description of a new subspecies of Swiftlet from Queensland.

Bulletin of the British Ornithologists' Club, Vol. XXXVI., p. 77, April 27th.

Birds of Australia, Vol. V., pt. 3, May 23rd.

Reviewed Ibis, 1916, pp. 648-650 ; Auk, 1916, p. 445.

Additions to the List of the Birds of Australia.

Bulletin of the British Ornithologists' Club, Vol. XXXVI., pp. 82-83, May 25th, and p. 89, July 7th.

Changes in names to be made to the List of the Birds of Australia.

Emu, Vol. XVI., pp. 34-36, July 1st.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 2, pt. 7, pp. 170-178, July 1st.

Descriptions of new subspecies of Australian Birds.

Bulletin of the British Ornithologists' Club, Vol. XXXVI., pp. 89-92, July 7th.

Birds of Australia, Vol. V., pt. 4, August 30th.

Reviewed Ibis, 1916, pp. 101-102, ; Auk, 1916, p. 445.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 2, pt. 8, pp. 200-204, Oct. 1st.

†On some new subspecies of Birds from Dirk Hartog Island.

Bulletin of the British Ornithologists' Club, Vol. XXXVII pp. 6-7, Oct. 24th.

Birds of Australia, Vol. VI., pt. 1, Nov. 22nd.

Reviewed Ibis, 1917, pp. 253-255, Auk, 1917, pp. 288-289.

1917.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 3, pt. 1, pp. 12-17, January 1st.

Some new Australian Birds.

Emu, Vol. XVI., pp. 180-185, January 1st.

Birds of Australia, Vol. VI., pt. 2, Feb. 6th.

Reviewed Ibis, 1917, pp. 253-255 ; Auk, 1917, pp. 352-354.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 3, pt. 2, pp. 34-38, April 1st.

APPENDIX.

- Birds of Australia, Vol. VI., pt. 3, April 17th.
Reviewed Ibis, 1917, pp. 445-447 ; Auk, 1917, pp. 352-354.
- Birds of Australia, Vol. VI., pt. 4, June 27th.
Reviewed Ibis, 1917, pp. 626-627 ; Auk, 1917, p. 492.
- Birds of the North and North-west of Australia.
South Australian Ornithologist, Vol. 3, pt. 3, pp. 68-75, July 1st.
- Austral Avian Record, Vol. III., pt. 4, July 21st.
New subspecies and notes on species and new genera.
The re-discovery of two lost birds.
Notes on some extra-limital Parrot names.
On a collection of Birds from the Maclean Museum, Sydney.
Sylvester Diggles, Ornithologist, with Portrait.
- Birds of Australia, Vol. VI., pt. 5, September 11th.
Reviewed Ibis, 1918, pp. 161-162 ; Auk, 1918, p. 97.
- The Nestlings of Australian Finches ; What do we know about them ?
Emu, Vol. XVII., pp. 100-103, Oct. 1st.
- † Nomenclature and Remarks on the Birds of Dirk Hartog Island.
Ibis, pp. 564-611, October 1st.
- Birds of the North and North-west of Australia.
South Australian Ornithologist, Vol. 3, pt. 4, pp. 109-113, Oct. 1st.
- Birds of Australia, Vol. VI., pt. 6, Dec. 11th.
Reviewed Auk, 1918, p. 246.
- Austral Avian Record, Vol. III., pt. 5, December 28th.
*Avian Nomenclatorial Notes.
Additions to the List of the Birds of Australia.

1918.

- The Platycercine Parrots of Australia.
Ibis, pp. 115-127, January 1st.
- *Letter to the Auk, January 1st.
- Correspondence.
Emu, Vol. XVII., pp. 157-159, January 1st.
- Birds of the North and North-west of Australia.
South Australian Ornithologist Vol. 3, pt. 5, pp. 137-141, January 1st.
- Birds of Australia, Vol. VII., pt. 1, March 4th.
Reviewed Ibis, 1918, pp. 505-507 ; Auk, 1918, p. 368.
- On a new subspecies of Babbler from South Australia.
Bulletin of the British Ornithologists' Club, Vol. XXXVIII., pp. 48-49, March 4th.
- Birds of the North and North-west of Australia.
South Australian Ornithologist, Vol. 3, pt. 6, pp. 174-180, April 1st.
- Birds of Australia, Vol. VII., pt. 2, May 15th.
Reviewed Ibis, 1918, pp. 732-734 ; Auk, 1918, pp. 490-491.
- Austral Avian Record, Vol. III., No. 6, June 25th.
A. J. North, Ornithologist, with Portrait.
On *Pachycephala melanura* Gould.
On *Turdus maxillaris* Latham.
*A forgotten Ornithologist.
*The Validity of some generic terms.
Additions to the List of the Birds of Australia.
- Birds of the North and North-west of Australia.
South Australian Ornithologist, Vol. 3, pt. 7, pp. 205-208, July 1st.
- Birds of Australia, Vol. VII., pt. 3, August 26th.
Reviewed Ibis, 1919, pp. 136-138 ; Auk, 1919, pp. 129-130.

LIST OF BIRDS OF AUSTRALIA.

What are Australian Petrels ?

Emu, Vol. XVIII., pp. 82-88, Oct. 1st.

Birds of the North and North-west of Australia.

South Australian Ornithologist, Vol. 3, pt. 8, pp. 225-229, Oct. 1st.

On some new subspecies of Australian birds.

Bulletin of the British Ornithologists' Club, Vol. XXXIX., pp. 23-24, Nov. 30th.

Birds of Australia, Vol. VII., pt. 4, December 19th.

Reviewed Ibis, 1919, pp. 345-347 ; Auk, 1919, pp. 299-300.

1919.

Birds of Australia, Vol. VII., pt. 5, July 10th.

Reviewed Auk, 1919, pp. 603-605.

Austral Avian Record, Vol. III., pt. 7, December 3rd.

S. A. White, Ornithologist, with Portrait.

T. Carter, Ornithologist, with Portrait.

W. D. K. Macgillivray, Ornithologist, with Portrait.

On some new subspecies of birds from West Australia.

Bulletin of the British Ornithologists' Club, Vol. XL., pp. 44-45, Dec. 8th.

1920.

Ornithological Nomenclature, its History and Reason.

South Australian Ornithologist, Vol. 5, pt. 1., pp. 17-24, January 1st.

On some new subspecies of Australian Birds.

Bulletin of the British Ornithologists' Club, Vol. XL., pp. 75-77, January 30th.

Birds of Australia Supplement, pt. 1., Feb. 16th.

Reviewed Ibis, 1920, pp. 503-504.

Austral Avian Record, Vol. III., No. 8, Feb. 13th.

Index to volume.

On some new subspecies of Australian Birds.

Bulletin of the British Ornithologists' Club, Vol. XL., pp. 105-107, March 31st.

†On a new subspecies of Bower Bird from West Australia.

Ibis, p. 499, with plate, April 1st.

On some changes in the names of Australian Birds.

Bulletin of the British Ornithologists' Club, Vol. XL., p. 121, April 30th.

Birds of Australia, Vol. VIII., pt. 1, May 5th.

Ibis, 1920, p. 946-948 ; Auk, 1920, pp. 470-471.

Austral Avian Record, Vol. IV., pt. 1, May 27th.

Dates of Ornithological Works.

What are Australian Petrels ?

Australian Crows.

Emu, Vol. XIX., pp. 296-297 ; 297-298, May 29th.

Birds of Australia, Vol. VIII., pt. 2, June 17th.

Reviewed Ibis, 1920, pp. 946-948 ; Auk, 1920, p. 609.

†Nomenclature and Remarks on some Western Australian Birds.

Ibis, pp. 679-719, July 1st.

Austral Avian Record, Vol. IV., parts 2 and 3, July 28th.

*Avian Taxonomy.

*Name List of the Birds of New Zealand.

*Name List of the Birds of Australia.

Recent Figures of *Acanthiza*.

Emu, Vol. XX., pp. 30-31, Aug. 17th.

APPENDIX.

- Birds of Australia, Vol. VIII., pt. 3, August 18th.
Reviewed Ibis, 1921, pp. 163-165 ; Auk, 1920, p. 609.
- Birds of Australia, Vol. VIII., pt. 4, Oct. 13th.
Reviewed Ibis, 1921, pp. 163-165 ; Auk, 1921, p. 143.
- New Species of Australian Birds since the time of John Gould.
Emu, Vol. XX., p. 96-98, Oct. 1st.
- On some new Genera of Australian Birds.
Bulletin of the British Ornithologists' Club, Vol. XLI., p. 35, Nov. 30th.
- Birds of Australia, Vol. VIII., pt. 5, December 15th.
Reviewed Ibis, 1921, pp. 328-329 ; Auk, 1921, pp. 295-296.
- *Austral Avian Record, Vol. IV., parts 4 and 5, December 16th.
Name List of the Birds of Australia.
Forgotten Bird-Artists.
Snipe and Sandpipers, a Rearrangement
Sherborn and the Systematist.

1921.

- †Nomenclature and Remarks on some Western Australian Birds.
Ibis, January 1st, pp. 48-81.
- Birds of Australia, Vol. IX., pt. 1, Feb. 15th.
Reviewed Ibis, 1921, pp. 555-556 ; Auk, 1921, pp. 294-295.
- *A Manual of the Birds of Australia, March 9th.
- Birds of Australia, Vol. IX., pt. 2, April 15th.
Reviewed Ibis, 1921, pp. 555-556 ; Auk, 1921, p. 475.
- *The Nature of the New Zealand Avifauna.
Emu, Vol. XX., pp. 210-221, April 23rd.
- Birds of Australia, Vol. IX., pt. 3, June 20th.
Reviewed Ibis, 1921, pp. 737-738.
- Austral Avian Record, Vol. IV., pt. 6, August 1st.
*Sherborn and the Systematist.
Additions and Corrections to my previous Lists.
*Notes of Interest.
- Birds of Australia, Vol. IX., pt. 4, Oct. 19th.
Reviewed Ibis, January 1922, pp. 202-203 ; Auk, 1922, pp. 123-124.
- Birds of Australia, Vol. IX., pt. 5, December 15th.
Reviewed Ibis, 1922, pp. 360-362 ; Auk, 1922, p. 436.

1922.

- Birds of Australia, Vol. IX., pt. 6, Feb. 15th.
Reviewed Ibis, 1922, pp. 360-362 ; Auk, 1922, p. 436.
- Austral Avian Record, Vol. IV., pt. 7, March 7th.
Additions and Corrections to my Check List.
*An Extraordinary Bird Book.
*Captain Thomas Brown.
- Birds of Australia, Vol. IX., pt. 7, April 4th.
Reviewed Ibis, 1922, pp. 584-585 ; Auk, 1922, p. 436.
- Austral Avian Record, Vol. IV., pt. 8, May 22nd.
Index to Vol. IV.
- Birds of Australia, Vol. IX., pt. 8, May 22nd.
Reviewed Ibis, Oct. 1922, pp. 725-726 ; Auk, 1922, pp. 579-580.
- Austral Avian Record, Vol. V., pt. 1., July 17th.
Additions and Corrections.
*Notes of Interest.
*Jarrocki Again.
*Thomas Watling, Artist.

LIST OF BIRDS OF AUSTRALIA.

Birds of Australia, Vol. IX., pt. 9, Aug. 3rd.

Reviewed Ibis, Jan. 1923, pp. 173-176 ; Auk, 1922, pp. 579-580.

Birds of Australia, Vol. X., pt. 1, September 28th, 1922.

Reviewed Ibis, Jan. 1923, pp. 173 to 176 ; Auk, 1923, pp. 155-156.

Descriptions of New Birds from Australia.

Bulletin of the British Ornithologists' Union, Vol. XLIII., pp. 13-14, Oct. 27th.

Birds of Australia, Vol. X., pt. 2, Dec. 12th.

Reviewed Ibis, July 1923, pp. 546-547 ; Auk, 1923, Vol. 40, p. 349.

LIST OF BIRDS OF AUSTRALIA.

ORDER PASSERIFORMES.

FAMILY PITTIDÆ.

CCLXXX. Genus *AUSTROPITTA*.

Austropitta Mathews, Austral Av. Rec., Vol. II., pt. 2-3, p. 62, Oct. 23rd, 1913. Type (by original designation): *Pitta versicolor* Swainson. New name for *Coloburis* Cabanis und Heine, 1860.

Coloburis Cabanis und Heine, Mus. Heineanum, Vol. II., p. 3 (after Jan. 20th), 1860. Typo (by subsequent designation, Salvadori, Orn. Pap. e. Mol., Vol. II., p. 377, 1881): *Pitta strepitans*=*Pitta versicolor* Swainson.

Not *Colobura* Billberg, Enum. Insect., p. 19, 1820, nor *Coloburus* Dumeril in Inst. de la Mem., Vol. XXIII., p. 399, 1853.

335. *AUSTROPITTA VERSICOLOR*. NOISY PITTA.

Gould, Vol. IV., pl. 1 (pt. VI.), March 1st, 1842. Mathews, Vol. VIII., pt. I., pl. 371, May 5th, 1920.

Pitta versicolor Swainson, Zool. Journ., Vol. I., pt. 4, p. 468, Jan. 1825: New South Wales.

Pitta strepitans Temminck et Laugier, Planch. Color. d'Ois., 56^e livr. (Vol. III., pl. 333), April 16th, 1825: New South Wales.

Pitta australis "Gray," Griffith and Pidgeon, Anim. Kingdom (Cuvier), Vol. VI., p. 401, "1829": New Holland = New South Wales.

Pitta similima Gould, Proc. Zool. Soc. (Lond.), 1868, p. 76, June 1st: Cape York, Queensland.

Pitta krefftii Salvadori, Atti Soc. Ital. Sci. Nat., Vol. XII., 1869, p. 551, Feb. 1870: Cape York, Queensland.

Pitta assimilis D'Alberty, Ann. Mus. Civ. Genova, Vol. X., p. 12 (after May 3rd), 1877. *Nom. nud.* Error for *similima* Gould; *id.*, Ibis, 1877, p. 368, pt. 3, July. *Nom. nud.*

Pitta versicolor intermedia Mathews, Nov. Zool., Vol. XVIII., p. 298, Jan. 31st, 1912: Bellenden Ker, Queensland.

DISTRIBUTION. Eastern Australia, from Cape York to New South Wales.

CCLXXXI. Genus *ERYTHROPITTA*.

Erythropitta Bonaparte, Ateneo Italiano, Vol. II., No. 11, p. 317 (Consp. Volucr. Aniso., p. 7), August (before 28th), 1854. Type (by subsequent designation, Gray, Cat. Gen. Subgen. Birds, p. 144, April 1855): *Pitta macklotii* Temminck et Laugier.

336. *ERYTHROPITTA MACKLOTII*. BLUE-BREASTED PITTA.

Gould, Suppl., pl. 29 (pt. v.), Aug. 1st, 1869. Mathews, Vol. VIII., pt. I., pl. 372, May 5th, 1920.

Pitta macklotii Temminck et Laugier, Planch. Color. d'Ois., 92^e livr. (Vol. V., pl. 547), July 26th, 1834: Baie de Lobo, Nouvelle Guinée.

Pitta digglesi Krefft, Ibis, July 1869, p. 350: Cape York or New Guinea (=New Guinea).

Pitta strenua "Gould MS." Elliot, Ibis, 1870, p. 410: "New Guinea representative of *P. mackloti*."

Pitta macklotii aruensis Rothschild and Hartert, Nov. Zool., Vol. VIII., p. 63, Feb. 25th, 1901: Wokan, Aru Islands.

Pitta macklotii yorki Mathews, Nov. Zool., Vol. XVIII., p. 299, Jan. 31st, 1912: Cape York, Queensland.

DISTRIBUTION. North Queensland, from Cape York to Cardwell, New Guinea, Aru Islands.

CCLXXXII. Genus *PULCHRIPITTA*.

Pulchripitta Elliot, Monogr. Pittidæ, 2nd ed., pt. 5, p. xviii. of Introd., Jan. 1895. Type (by monotypy): *Pitta iris* Gould.

337. *PULCHRIPITTA IRIS*. RAINBOW PITTA.

Gould, Vol. IV., pl. 3 (pt. VI.), March 1st, 1842. Mathews, Vol. VIII., pt. I., pl. 371, May 5th, 1920.

Pitta iris Gould, Birds Austr., pt. 6 (Vol. IV., pl. 3), March 1st, 1842: Port Essington, Northern Territory.

Pulchripitta iris keatsi Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 129, Jan. 28th, 1915: Port Keats, Northern Territory.

Pulchripitta iris melvillensis Mathews, *ib.*: Melville Island, Northern Territory.

DISTRIBUTION. Northern Territory, North-west Australia.

LIST OF BIRDS OF AUSTRALIA.

FAMILY ATRICHORNITHIDÆ.

CCLXXXIII. Genus *ATRICHORNIS*.

Atrichornis Stejneger, Standard Nat. Hist. (Kingsley), Vol. IV., p. 462 (after July), 1885. Type (by monotypy):
Atrichia rufescens Ramsay.

338. ATRICHORNIS RUFESCENS. RUFOUS SCRUB-BIRD.

Gould, Suppl., pl. 26 (pt. iv.), Dec. 1st, 1867. Mathews, Vol. VIII., pt. i., pl. 373, May 5th, 1920.

Atrichia rufescens Ramsay, Proc. Zool. Soc. (Lond.), 1866, p. 438, April 1st, 1867: Richmond River, New South Wales.

Atrichornis rufescens tweedi Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 71, July 21st, 1917: Tweed River, New South Wales.

Atrichornis rufescens jacksoni H. L. White, Emu, Vol. XIX., pt. 4, p. 258, May 29th, 1920: Macpherson Range, S. Queensland.

DISTRIBUTION. Northern New South Wales as far south as the Bellinger River, and Southern Queensland.

CCLXXXIV. Genus *RAHCINTA*.

Rahcinta Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 58, April 7th, 1916. Type (by original designation):
Atrichia clamosa Gould.

Atrichia Gould, Birds Austr., pt. xiv. (Vol. III., pl. 34), March 1st, 1844. Type (by monotypy): *Atrichia clamosa* Gould.

Not *Atrichia* Schranck, Fauna Boica, Vol. III., p. 54 (pref. Nov. 8th, 1802), "1803."

339. RAHCINTA CLAMOSA. NOISY SCRUB-BIRD.

Gould, Vol. III., pl. 34 (pt. xiv.), March 1st, 1844. Mathews, Vol. VIII., pt. i., pl. 373, May 5th, 1920.

Atrichia clamosa Gould, Birds Austr., pt. xiv. (Vol. III., pl. 34), March 1st, 1844: between Perth and Augusta, West Australia.

Atrichornis clamosus campbelli Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 83, May 25th, 1916: King George's Sound, South-west Australia.

DISTRIBUTION. South-west Australia only. Apparently extinct.

FAMILY HIRUNDINIDÆ.

CCLXXXV. Genus *HIRUNDO*.

Hirundo Linné, Syst. Nat., 10th ed., p. 191, Jan. 1st, 1758. Type (by subsequent designation, Gray, 1840, p. 8):
Hirundo rustica Linné.

Chelidon Forster, Synopt. Cat. Brit. Birds, p. 17, Dec. 1817. Type (by monotypy): *Hirundo rustica* Linné.

340. HIRUNDO NEOXENA. WELCOME SWALLOW.

Gould, Vol. II., pl. 13 (pt. ix.), Dec. 1st, 1842. Mathews, Vol. VIII., pt. i., pl. 374, May 5th, 1920.

Hirundo neoxena Gould, Birds Austr., pt. ix. (Vol. II., pl. 13), Dec. 1st, 1842: Tasmania.

Hirundo pacifica "Gray," Griffith and Pidgeon, Animal Kingdom (Cuvier), Vol. VII., pl. to page 96, "1829": New Holland.

Not *Hirundo pacifica* Latham, Index. Orn. Suppl., p. lviii., 1801.

Cotyle familiaris Gould, Grey's Journ. Two Exped. Disc. Austr., Vol. II., App., p. 416, 1841. *Nom. nud.*

Chelidon javanica carteri Mathews, Nov. Zool., Vol. XVIII., p. 300, Jan. 31st, 1912: Broome Hill, West Australia.

DISTRIBUTION. Australia and Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCLXXXVI. Genus *CHERAMŒCA*.

Cheramœca Cabanis, Mus. Heine, Vol. I., p. 49 (after Oct. 23rd), 1851. Type (by monotypy): *Hirundo leucosternus* Gould.

341. *CHERAMŒCA LEUCOSTERNUM*. BLACK AND WHITE SWALLOW.

Gould, Vol. II., pl. 12 (pt. ix.), Dec. 1st, 1842. Mathews, Vol. VIII., pt. i., pl. 374, May 5th, 1920.

Hirundo leucosternus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 172, July 1841: Namoi River, New South Wales.

Cheramœca leucosternum marngli Mathews, Nov. Zool., Vol. XVIII., p. 301, Jan. 31st, 1912: Fitzroy River, North-west Australia.

Cheramœca leucosternum stonei Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 118, Dec. 24th, 1912: Warialda, New South Wales.

DISTRIBUTION. Australia. Not Tasmania.

CCLXXXVII. Genus *HYLOCHELIDON*.

Hylochelidon Gould, Handb. Birds Austr., Vol. I., p. 110, Dec. 1865. Type (by monotypy): *Hirundo nigricans* Vieillot.

Antrochelidon Baldamus, Journ. für Ornith., Dec. 1869, p. 406=1870. Type (by monotypy): *Hirundo nigricans* Vieillot.

342. *HYLOCHELIDON NIGRICANS*. TREE-MARTIN.

Gould, Vol. II., pl. 14 (pt. ix.), Dec. 1st, 1842. Mathews, Vol. VIII., pt. i., pl. 375, May 5th, 1920.

Hirundo nigricans Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIV., p. 523, Sept. 13th, 1817: Hobart Town, Tasmania.

Hirundo pyrrhonota Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 190, Feb. 17th, 1827: New South Wales.

Not *Hirundo pyrrhonota* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIV., p. 519, Sept. 13th, 1817.

Collocalia arborea Gould, Birds Austr., pt. ix. (Vol. II., pl. 14), Dec. 1st, 1842: Tasmania.

Hirundo pyrrhonota australis Temminck und Schlegel, Fauna Japonica. Aves, p. 35, 1850: Tasmania.

Herse pygialis "Temm." Bonaparte, Consp. Gen. Avium, Vol. I., p. 340, 1850 (before Feb. 3rd, 1851): In synonymy.

Petrochelidon nigricans neglecta Mathews, Nov. Zool., Vol. XVIII., p. 301, Jan. 31st, 1912: (Fitzroy River) North-west Australia.

Petrochelidon nigricans distinguenda Mathews, *ib.*: East Murchison, West Australia.

Petrochelidon nigricans rogersi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 38, April 2nd, 1912: Port Darwin, Northern Territory.

Petrochelidon nigricans caleyi Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 65, Oct. 23rd, 1913: Albury, New South Wales.

DISTRIBUTION. Australia and Tasmania.

CCLXXXVIII. Genus *LAGENOPLASTES*.

Lagenoplastes Gould, Handb. Birds Austr., Vol. I., p. 112, Dec. 1865. Type (by original designation): *Collocalia ariel* Gould.

343. *LAGENOPLASTES ARIEL*. FAIRY MARTIN.

Gould, Vol. II., pl. 15 (pt. ix.), Dec. 1st, 1842. Mathews, Vol. VIII., pt. i., pl. 375, May 5th, 1920.

Collocalia ariel Gould, Birds Austr., pt. ix. (Vol. II., pl. 15), Dec. 1st, 1842: New South Wales.

Petrochelidon ariel conigravi Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 75, June 28th, 1912: Wyndham, North-west Australia.

DISTRIBUTION. Australia and Tasmania.

LIST OF BIRDS OF AUSTRALIA.

FAMILY MUSCICAPIDÆ.

CCLXXXIX. Genus *MICRÆCA*.

Micræca Gould, Proc. Zool. Soc. (Lond.), 1840, p. 172, July 1841. Type (by monotypy): *Micræca assimilis* Gould.

344. *MICRÆCA LEUCOPHÆA*. BROWN FLYCATCHER.

Gould, Vol. II., pl. 93 (pt. xxxii.), Sept. 1st, 1848. Gould, Birds New Guinea, Vol. II., pl. 10 (pt. xi.), Feb. 1st, 1880. Mathews, Vol. VIII., pt. i., pl. 376, May 5th, 1920.

Sylvia leucophæa Latham, Index Ornith. Suppl., p. lv. (after May 30th), 1801: New South Wales (Sydney).

Myiagra macroptera Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 254, Feb. 17th, 1827: New South Wales (Sydney).

Muscicapa platyrhyncha Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 178 (pref. June 29th), 1830: New South Wales (Sydney).

Micræca assimilis Gould, Proc. Zool. Soc. (Lond.), 1840, p. 172, July 1841: Western Australia.

Micræca fascinans Gould, Handb. Birds Austr., Vol. I., p. 258, 1865, and of most recent authors.

Not *Loxia fascinans* Latham, Index Ornith. Suppl., p. xlvi., 1801.

Micræca pallida De Vis, Proc. Roy. Soc. Queensland, Vol. I., pt. iii., p. 159 (after Sept.), 1884: Norman River, Queensland.

Micræca fascinans victoriae Mathews, Nov. Zool., Vol. XVIII., p. 302, Jan. 31st, 1912: (Parwan) Victoria.

Micræca fascinans subpallida Mathews, *ib.*: Napier Broome Bay, North-west Australia.

Micræca fascinans howei Mathews, Austral Av. Rec., Vol. II., pt. i., p. 8, Aug. 2nd, 1913: Kow Plains, Victoria.

Micræca fascinans barcoo S. A. White, Trans. Roy. Soc. South Austr., Vol. 41, p. 455, Dec. 24th, 1917: Cooper's Creek, Central Australia.

DISTRIBUTION. Australia. Not Tasmania.

345. *MICRÆCA BRUNNEICAUDA*. BROWN-TAILED FLYCATCHER.

Mathews, Vol. VIII., pt. i., pl. 376, May 5th, 1920.

Micræca brunneicauda Campbell, Emu, Vol. II., pt. ii., p. 85, Oct. 1st, 1902: (Port Darwin) Northern Territory.

Micræca brunneicauda tormenti Mathews, Austral Av. Rec., Vol. III., pt. 2, p. 58, April 7th, 1916: Point Torment, North-west Australia.

DISTRIBUTION. North-west Australia. Northern Territory.

CCXC. Genus *KEMP*IA.

Kempia Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 109, Dec. 24th, 1912. Type (by original designation): *Micræca flavigaster* Gould.

346. *KEMP*IA FLAVIGASTER. LEMON-BREASTED FLYCATCHER.

Gould, Vol. II., pl. 94 (pt. xxi.), Dec. 1st, 1845. Mathews, Vol. VIII., pt. i., pl. 376, May 5th, 1920.

Micræca flavigaster Gould, Proc. Zool. Soc. (Lond.), 1842, p. 132, Feb. 1843: Port Essington, Northern Territory.

Micræca flaviventris Salvadori, Ann. Mus. Av. Genova, Vol. XII., p. 324, 1878: *Nom. emend.* only.

Micræca flavigaster terræreginæ Mathews, Nov. Zool., Vol. XVIII., p. 303, Jan. 31st, 1912: Cairns, North Queensland.

Micræca flavigaster melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 39, April 2nd, 1912: Melville Island, Northern Territory.

Micræca flavigaster lætissima Rothschild, Bull. Brit. Orn. Club, Vol. XXXVII., p. 4, Oct. 4th, 1916: Cardwell, Queensland.

DISTRIBUTION. North Queensland, Northern Territory.

LIST OF BIRDS OF AUSTRALIA.

CCXCI. Genus *PETROICA*.

Petroica Swainson, Zool. Illus., 2nd Ser., Vol. I., p. 39, "1829." Type (by monotypy): *Muscicapa multicolor* Gmelin.

347. *PETROICA* *MULTICOLOR*. SCARLET-BREASTED ROBIN.

[*Muscicapa multicolor* Gmelin, Syst. Nat., pt. II., p. 944, April 20th, 1789: Norfolk Island. Extra-limital.]

Gould, Vol. III., pl. 3 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 377, June 17th, 1920.

Muscicapa hoodang Lesson, Journ. aut Globe "Thetis," Vol. II., p. 322, "1837" (ack. B.F., Feb. 24th, 1838): Sydney, New South Wales.

Petroica coccinea Peale, United States Expl. Exped., Vol. VIII., p. 92, 1848 (in or before October): Sydney, New South Wales.

Petroica leggii Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 165, March 26th, 1879: "Australia," i.e. Tasmania.

Petroica campbelli Sharpe, Bull. Brit. Ornith. Club, Vol. VIII., p. xxii., Dec. 31st, 1898: (near Albany) West Australia.

Petroica leggii (subsp. *halmaturina*) A. G. Campbell, Emu, Vol. V., pt. 3, p. 140, Jan. 1st, 1906: Kangaroo Island.

Petroica multicolor frontalis Mathews, Nov. Zool., Vol. XVIII., p. 303, Jan. 31st, 1912: Parwan, Victoria.

Petroica multicolor samueli Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 89, Sept. 18th, 1912: Kangaroo Island.

DISTRIBUTION. Extra-tropical Australia and Tasmania.

CCXCII. Genus *WHITEORNIS*.

Whiteornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 101, Dec. 24th, 1912. Type (by original designation): *Muscicapa goodenovii* Vigors and Horsfield.

348. *WHITEORNIS* *GOODENOVII*. RED-CAPPED ROBIN.

Gould, Vol. III., pl. 5 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 379, June 17th, 1920.

Muscicapa goodenovii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 245, Feb. 17th, 1827: South Australia.

Petroica ramsayi Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 172, March 26th, 1879: Shark's Bay, Mid-west Australia.

Petroica goodenovii quoyi Mathews, Nov. Zool., Vol. XVIII., p. 305, Jan. 31st, 1912: (Narawa) New South Wales.

Petroica goodenovii ruficapilla Mathews, *ib.*: Broome Hill, South-west Australia.

Petroica goodenovii alexandrae Mathews, *ib.*: Alexandra, Northern Territory.

DISTRIBUTION. Australia. Not Tasmania.

CCXCIII. Genus *LITTLERA*.

Littlera Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 109, Dec. 24th, 1912. Type (by original designation): *Muscicapa chrysoptera*.
Not of Quoy and Gaimard = *Petroica phœnicea* Gould.

349. *LITTLERA* *PHOENICEA*. FLAME-BREASTED ROBIN.

Gould, Vol. III., pl. 6 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 378, June 17th, 1920.

Petroica phœnicea Gould, Synops. Birds Austr., pt. I., pl. (7), Jan. 1st, 1837: New South Wales (Sydney).

Petroica phœnicca albicans Mathews, Nov. Zool., Vol. XVIII., p. 304, Jan. 31st, 1912: Bayswater, Victoria.

Petroica chrysoptera addenda Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 89, Sept. 18th, 1912: Goulburn, New South Wales.

Littlera phœnicea tasmanica Mathews, Austral Av. Rec., Vol. V., pt. I., p. 5, July 17th, 1922: Tasmania.

DISTRIBUTION. New South Wales, Victoria, South Australia, Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCXCIV. Genus *ERYTHRODRYAS*.

Erythrodryas Gould, Birds Austr., pt. VIII. (Vol. III., pl. 1), Sept. 1st, 1842. Type (by subsequent designation, Gould, Proc. Zool. Soc. (Lond.), 1842, p. 112, Jan. 1843): *Saxicola rodinogaster* Drapiez.

350. *ERYTHRODRYAS RODINOASTER*. PINK-BREASTED ROBIN.

Gould, Vol. III., pl. 1 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 378, June 17th, 1920.

Saxicola rodinogaster Drapiez, Ann. Gen. des Sci. Phys. Bruxelles, Vol. II., p. 341, 1819: Maria Island, Tasmania.

Muscicapa lathamii Vigors, Zool. Journ., Vol. I., pt. 4, p. 410, pl. 13, Jan. 1825: Tasmania.

Not *Muscicapa lathamii* Stephens in Shaw's Gen. Zool., Vol. X., pt. 2, p. 336, 1817.

Muscicapa chrysoptera Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 177, pl. 4, fig. 2 (pref. June 29th), 1830: Hobart, Tasmania.

Petroica rodinogaster inexpectata Mathews, Nov. Zool., Vol. XVIII., p. 304, Jan. 31st, 1912: Gippsland, Victoria.

DISTRIBUTION. Tasmania, Victoria (? South Australia), Islands of Bass Strait.

CCXCV. Genus *BELCHERA*.

Belchera Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 109, Dec. 24th, 1912. Type (by original designation): *Petroica rosea* Gould.

351. *BELCHERA ROSEA*. ROSE-BREASTED ROBIN.

Gould, Vol. III., pl. 2 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 377, June 17th, 1920.

Petroica rosea Gould, Proc. Zool. Soc. (Lond.), 1839, p. 142, March 1840: Hunter River, New South Wales.

Belchera rosea queenslandica Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916: North Queensland.

DISTRIBUTION. Queensland, New South Wales, Victoria.

CCXCVI. Genus *MELANODRYAS*.

Melanodryas Gould, Handb. Birds Austr., Vol. I., p. 283, Dec. 1865. Type (by monotypy): *Muscicapa cucullata* Latham.

352. *MELANODRYAS CUCULLATA*. HOODED ROBIN.

Gould, Vol. III., pl. 7 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 379, June 17th, 1920.

Muscicapa cucullata Latham, Index Ornith. Suppl., p. li. (after May 30th), 1801: New South Wales.

Ænanthe pectoralis Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 436, May 30th, 1818: "Timor," error = New South Wales.

Grallina bicolor Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 233, Feb. 17th, 1827: Prospect Hill, New South Wales.

Saxicola jardinii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 236, note, Feb. 17th, 1827: = ♀ New South Wales.

Melanodryas picata Gould, Handb. Birds Austr., Vol. I., p. 285, Dec. 1865: North-west Coast Australia.

Petroica cucullata vigorsii Mathews, Nov. Zool., Vol. XVIII., p. 305, Jan. 31st, 1912: Frankston, Victoria.

Petroica cucullata westralensis Mathews, *ib.*, p. 306: Perth, West Australia.

Petroica cucullata subpicata Mathews, Nov. Zool., Vol. XVIII., p. 306, Jan. 31st, 1912: Alexandra, Northern Territory.

Petroica cucullata melvillensis Zietz, South Austr. Ornith., Vol. I., pt. 1., p. 15, Jan. 1st, 1914: Melville Island, Northern Territory.

DISTRIBUTION. Australia. Not Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCXCVII. Genus *AMAURODRYAS*.

Amaurodryas Gould, Handb. Birds Austr., Vol. I., p. 286, Dec. 1865. Type (by monotypy): *Muscicapa vittata* Quoy et Gaimard.

353. *AMAURODRYAS VITTATA*. DUSKY ROBIN.

Gould, Vol. III., pl. 8 (pt. VIII.), Sept. 1st, 1842. Mathews, Vol. VIII., pt. 2, pl. 380, June 17th, 1920.

Muscicapa vittata Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 173 (pref. June 29th), 1830: "King George Sound, West Australia" error=Tasmania.

Petroica fusca Gould, Birds Austr., pt. VIII. (Vol. III., pl. 8), Sept. 1st, 1842: Tasmania.

Amaurodryas vittata kingi Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 92, Sept. 24th, 1914: King Island, Bass Straits.

Amaurodryas vittata bassi Mathews, *ib.*: Barren Island, Flinders Group, Bass Straits.

DISTRIBUTION. Tasmania and islands of Bass Straits.

CCXCVIII. Genus *SMICRORNIS*.

Smicrornis Gould, Proc. Zool. Soc. (Lond.), 1842, p. 133, Feb. 1843. Type (by monotypy): *Smicrornis flavescens* Gould.

Subsmicrornis Campbell and others, Emu, Vol. XII., pt. 3, Suppl., p. 15, January 1913. Type (by monotypy): *Smicrornis brevirostris flavescens* Gould.

354. *SMICRORNIS BREVIROSTRIS*. TREE-TIT.

Gould, Vol. II., pl. 103 (pt. XXXIV.), Dec. 1st, 1848; Vol. II., pl. 104 (pt. XXI.), Dec. 1st, 1845. Mathews, Vol. VIII., pt. 2, pl. 381, June 17th, 1920.

Psilopus brevirostris Gould, Synops. Birds Austr., pt. IV., pl. (61), April 1st, 1838: New South Wales (Sydney).

Smicrornis flavescens Gould, Proc. Zool. Soc. (Lond.), 1842, p. 134, Feb. 1843: Port Essington, Northern Territory.

Smicrornis occidentalis Bonaparte, Consp. Gen. Av., Vol. I., pt. II., p. 293, Feb. 3rd, 1851: West Australia. *Nom. nud.*

Smicrornis brevirostris pallescens Mathews, Nov. Zool., Vol. XVIII., p. 306, Jan. 31st, 1912: Inkerman, Queensland.

Smicrornis brevirostris viridescens Mathews, *ib.*, p. 307: Taillem Bend, South Australia.

Smicrornis brevirostris occidentalis Mathews, *ib.*: Broome Hill, West Australia.

Smicrornis brevirostris subflavescens Mathews, *ib.*: Alexandra, Northern Territory.

Smicrornis brevirostris mungi Mathews, *ib.*: Mungi, Interior North-west Australia.

Smicrornis brevirostris rogersi Mathews, *ib.*: (Napier Broome Bay) North-west Australia.

Smicrornis brevirostris stirlingi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 39, April 2nd, 1912: Stirling Ranges, South-west Australia.

Smicrornis brevirostris melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 39, April 2nd, 1912: Melville Island, Northern Territory.

Smicrornis brevirostris mathewsi S. A. White, Trans. Proc. Roy. Soc., South Austr., Vol. XXXIX., p. 749, Dec. 1915: Wantapella Swamp, Central Australia.

Smicrornis brevirostris mallee Mathews, Birds Austr., Vol. VIII., pt. 2, p. 132, June 17th, 1920: Mallee, Victoria.

Smicrornis brevirostris bonapartei Mathews, Austral Av. Rec., Vol. V., pt. I., p. 5, July 17th, 1922. New name for *S. b. occidentalis* Mathews, Birds Austr., Vol. VIII., p. 443, *i.e.*, p. 131: Broome Hill, South-west Australia.

DISTRIBUTION. Australia. Not Tasmania.

CCXCIX. Genus *GERYGONE*.

Gerygone Gould, Grey's Journ. Two Exped. Disc. Austr., Vol. II., App., p. 417, note, 1841. New name for *Psilopus* Gould, 1838. Type (by subsequent designation, Gray, 1840, p. 22): *Psilopus albogularis* Gould = *P. olivaceus* Gould.

Psilopus Gould, Synops. Birds Austr., pt. IV., pl. (61), April 1st, 1838. Type as above: *P. olivaceus* Gould. Not *Psilopus* Meigen Syst. Besch. Zweifl. Insekt, Vol. IV., p. 35, 1824.

Ostiarius Gistel, Naturg. Thierr. für höhere Schulen, p. x. (pref. Easter 1847), 1848. New name for *Psilopus* Oken, *i.e.*, Gould.

LIST OF BIRDS OF AUSTRALIA.

355. GERYGONE OLIVACEA. WHITE-THROATED FLY-EATER.

Gould, Vol. II., pl. 97 (pt. XXIX.), Dec. 1st, 1847. Mathews, Vol. VIII., pt. 2, pl. 381, June 17th, 1920.

Psilopus olivaceus Gould, Synops. Birds Austr., pt. iv., pl. (61), April 1st, 1838 : New South Wales (Sydney).

Psilopus albogularis Gould, *ib.* : New South Wales.

Acanthiza flavigasta Diggles, Trans. Philos. Soc. Queensl., 1876, p. 11 : Normanton, Queensland.

Gerygone albigularis rogersi Mathews, Nov. Zool., Vol. XVIII., p. 23, June 17th, 1911 : Derby, North-west Australia.

Gerygone albigularis queenslandica Mathews, Nov. Zool., Vol. XVIII., p. 308, Jan. 31st, 1912 : Inkerman, Queensland.

DISTRIBUTION. New South Wales, Queensland (not Cape York), Northern Territory, North-west Australia.

CCC. Genus *WILSONAVIS*.

Wilsonavis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 110, Dec. 24th, 1912. Type (by original designation) : *Psilopus fuscus* Gould, *i.e.*, of 1846, not of 1838 = *Wilsonavis fusca richmondi* Mathews.

356. WILSONAVIS RICHMONDI. BROWN FLY-EATER.

Gould, Vol. II., pl. 98 (pt. XXV.), Dec. 1st, 1846. Mathews, Vol. VIII., pt. 2, pl. 332, June 17th, 1920.

Gerygone fusca Gould, Birds Austr., pt. XXV. (Vol. II., pl. 98), Dec. 1st, 1846 : New South Wales.

Not *Psilopus fuscus* Gould, Synops. Birds Austr., pt. iv., April 1838.

Wilsonavis fusca richmondi Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 129, Jan. 29th, 1915 : Richmond River, New South Wales.

Wilsonavis richmondi gouldiana Mathews, Birds Austr., Vol. VIII., pt. 2, p. 143, June 17th, 1920 : Gosford, New South Wales.

DISTRIBUTION. New South Wales.

CCCI. Genus *ETHELORNIS*.

Ethelornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 110, Dec. 24th, 1912. Type (by original designation) : *Gerygone magnirostris* Gould.

357. ETHELORNIS MAGNIROSTRIS. LARGE-BILLED FLY-EATER.

Gould, Vol. II., pl. 100 (pt. XXXII.), Sept. 1st, 1848. Mathews, Vol. VII., pt. 3, pl. 383, Aug. 18th, 1920.

Gerygone magnirostris Gould, Proc. Zool. Soc. (Lond.), 1842, p. 133, Feb. 1843 : Greenhill Island, Port Essington, Northern Territory.

Gerygone magnirostris melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 39, April 2nd, 1912 : Melville Island, Northern Territory.

DISTRIBUTION. Northern Territory, Melville Island.

358. ETHELORNIS CAIRNSENSIS. ALLIED FLY-EATER.

Mathews, Vol. VIII., pt. 3, pl. 384, Aug. 18th, 1920.

Gerygone magnirostris cairnsensis Mathews, Nov. Zool., Vol. XVIII., p. 309, Jan. 31st, 1912 : Cairns, North Queensland.

Ethelornis cairnsensis robini Mathews, Birds Austr., Vol. VIII., pt. 3, p. 151, Aug. 18th, 1920 : Cape York, North Queensland.

DISTRIBUTION. North Queensland (Cape York to Cardwell district).

359. ETHELORNIS TENEBROSUS. DUSKY FLY-EATER.

Mathews, Vol. VIII., pt. 2, pl. 382, June 17th, 1920.

Pseudogerygone tenebrosa Hall, Victorian Nat., Vol. XVIII., No. 5, p. 79, Sept. 1901 : Fitzroy River, North-west Australia.

LIST OF BIRDS OF AUSTRALIA.

Gerygone tenebrosa christophori Mathews, Nov. Zool., Vol. XVIII., p. 311, Jan. 31st, 1912: Carnarvon, Mid-west Australia.

Ethelornis magnirostris whitlocki Mathews, Austral Av. Rec., Vol. III., pt. I., p. 24, June 30th, 1915: Port Hedland, Mid-west Australia.

DISTRIBUTION. West Australia, from Carnarvon to the Fitzroy River.

360. ETHELORNIS CHLORONOTUS. GREEN-BACKED FLY-EATER.

Gould, Vol. II., pl. 102 (pt. xx.), Sept. 1st, 1845. Mathews, Vol. VIII., pt. 2, pl. 382, June 17th, 1920.

Gerygone chloronotus Gould, Proc. Zool. Soc. (Lond.), 1842, p. 133, Feb. 1843: Port Essington, Northern Territory.

Gerygone chloronota darwini Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 40, April 2nd, 1912: Parry's Creek, North-west Australia.

Gerygone chloronota apsleyi Mathews, *ib.*: Melville Island, Northern Territory.

DISTRIBUTION. Northern Territory, North-west Australia.

361. ETHELORNIS LEVIGASTER. BUFF-BREASTED FLY-EATER.

Gould, Vol. II., pl. 101 (pt. xxxiv.), Dec. 1st, 1848. Mathews, Vol. VIII., pt. 3, pl. 385, Aug. 18th, 1920.

Gerygone levigaster Gould, Proc. Zool. Soc. (Lond.), 1842, p. 133, Feb. 1843: near Port Essington, Northern Territory.

Gerygone levigaster broomei Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 89, Sept. 18th, 1912: Napier Broome Bay, North-west Australia.

Ethelornis levigaster intermissus Mathews, Birds Austr., Vol. VIII., pt. 3, p. 160, Aug. 18th, 1920: Buchanan's Islet, Melville Island, Northern Territory.

Ethelornis levigaster perconfusus Mathews, Birds Austr., Vol. VIII., pt. 3, p. 161, Aug. 18th, 1920: (Derby) North-west Australia.

DISTRIBUTION. Northern Territory, North-west Australia.

362. ETHELORNIS CANTATOR. SINGING FLY-EATER.

Mathews, Vol. VIII., pt. 3, pl. 384, Aug. 18th, 1920.

Pseudogerygone cantator Weatherill, Queensl. Nat., Vol. I., p. 74, Sept. 30th, 1908: Moreton Bay, Queensland.

Ethelornis cantator weatherilli Mathews, Birds Austr., Vol. VIII., pt. 3, p. 164, Aug. 18th, 1920: near Brisbane, Queensland.

DISTRIBUTION. South Queensland.

363. ETHELORNIS MOUKI. QUEENSLAND FLY-EATER.

Mathews, Vol. VIII., pt. 3, pl. 384, Aug. 18th, 1920.

Gerygone pallida North, Austr. Mus. Spec. Cat. No. 1, Vol. I., pt. III., p. 196, April 27th, 1903: Boar Pocket, Bellenden Ker Range, North Queensland.

Not *Gerygone pallida* Finsch., Notes Leyden Mus., Vol. XX., p. 134, 1898.

Gerygone levigaster mouki Mathews, Nov. Zool., Vol. XVIII., p. 310, Jan. 31st, 1912: Cairns, Queensland.

DISTRIBUTION. North Queensland, Cairns district.

364. ETHELORNIS MASTERSI. GULF FLY-EATER.

Mathews, Vol. VIII., pt. 3, pl. 384, Aug. 18th, 1920.

Gerygone simplex Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 52, Feb. 1876: (Norman River) Gulf of Carpentaria, Queensland.

Not *Gerygone simplex* Cabanis, Journ. für Ornith., 1872, p. 316.

Pseudogerygone mastersi Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 224, footnote, March 26th, 1879. New name for *Gerygone simplex* Masters: Norman River, Gulf of Carpentaria, Queensland.

Gerygone levigaster mungi Mathews, Nov. Zool., Vol. XVIII., p. 310, Jan. 31st, 1912: Mungi (Interior), North-west Australia.

Ethelornis normantoni Mathews, Birds Austr., Vol. VIII., pt. 3, p. 169, Aug. 18th, 1920. New name for "*E. mastersi*," described on p. 167.

DISTRIBUTION. Interior Northern Australia, from Normanton, Queensland, to Mungi, North-west Australia.

LIST OF BIRDS OF AUSTRALIA.

365. ETHELORNIS FUSCUS. FUSCOUS FLY-EATER.

Gould, Vol. II., pl. 99 (pt. xxix.), Dec. 1st, 1847. Mathews, Vol. VIII., p. 3, pl. 386, Aug. 18th, 1920.

Psilopus fuscus Gould, Synops. Birds Austr., pt. iv., pl. (61), April 1st, 1838 : Australia=Swan River, West Australia.

Psilopus culicivorus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 174, July 1841 : (Swan River) West Australia.

Gerygone culicivora wayensis Mathews, Nov. Zool., Vol. XVIII., p. 308, Jan. 31st, 1912 : Lake Way, West Australia.

Gerygone culicivora dendyi Mathews, *ib.*, p. 309 : Mungi (Interior), North-west Australia.

Gerygone culicivora exsul Mathews, *ib.* : Rutherglen, Victoria.

Pseudogerygone jacksoni Campbell, Emu, Vol. XI., pt. iv., p. 247, April 1st, 1912 : Mogil Mogil district, New South Wales.

Gerygone culicivora berneyi Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 119, Dec. 24th, 1912 : (Tambo) Queensland.

Ethelornis culicivorus musgravi Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 21st, 1915 : Musgrave Ranges, Central Australia.

DISTRIBUTION. Interior of Australia ; coastal in the west and north to Mungi, North-west Australia, north-east to Tambo, Queensland, and south-east to Rutherglen, Victoria.

CCCII. Genus *PSEUDOGERYGONE*.

Pseudogerygone Sharpe, Notes Leyden Mus., Vol. I., p. 29, Jan. 1879. Type (by original designation) : *Gerygone personata* Gould.

366. PSEUDOGERYGONE PALPEBROSA. BLACK-THROATED FLY-EATER.

[*Gerygone palpebrosa* Wallace, Proc. Zool. Soc. (Lond.), 1865, p. 475, Oct. 1st : Aru Islands. Extra-limital.]

Gould, Suppl. pl. 14 (pt. iv.), Dec. 1st, 1867. Mathews, Vol. VIII., pt. 3, pl. 387, Aug. 18th, 1920.

Gerygone personata Gould, Proc. Zool. Soc. (Lond.), 1866, p. 217, Oct. 1st : Cape York, Queensland.

Gerygone flavida Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 53, July 1877 : Herbert River district, Queensland.

Pseudogerygone personata johnstoni Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916 : Johnstone River, North Queensland.

Pseudogerygone personata watsoni Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 71, July 21st, 1917 : Watson River, North Queensland.

DISTRIBUTION. North Queensland, from Cape York to Cairns.

CCCIII. Genus *IREDALEORNIS*.

Iredaleornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 127, Dec. 24th, 1912. New name for *Heteromyias* Sharpe. Type (by monotypy) : *Poecilodryas* (?) *cinereifrons* Ramsay.

Heteromyias Sharpe, Cat. Birds Brit. Mus., Vol. IV., pp. 114, 239, March 26th, 1879. Type (by monotypy) : *Poecilodryas* (?) *cinereifrons* Ramsay.

Not *Heteromyia* Say., Amer. Entom., Vol. II., pl. 35. 1825.

367. IREDALEORNIS CINEREIFRONS. ASHY-FRONTED FLY-ROBIN.

Gould, Birds New Guinea, Vol. II., pl. 15 (pt. x.), Sept. 1st, 1879. Mathews, Vol. VIII., pt. 3, pl. 388, Aug. 18th, 1920.

Poecilodryas (?) *cinereifrons* Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 588, April 1st, 1876 : near Cardwell, Queensland.

Heteromyias cinereifrons athertoni Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Atherton, North Queensland.

DISTRIBUTION. North Queensland (Cardwell district).

CCCIV. Genus *POECILODRYAS*.

Poecilodryas Gould, Handb. Birds Austr., Vol. I., p. 287, Dec. 1865. Type (by subsequent designation. Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 240, 1879) : *Petroica superciliosa* Gould.

368. POECILODRYAS SUPERCILIOSA. WHITE-BROWED ROBIN.

Gould, Vol. III., pl. 9 (pt. xxvi.), Dec. 1st, 1847. Mathews, Vol. VIII., pt. 3, pl. 388, Aug. 18th, 1920.

LIST OF BIRDS OF AUSTRALIA.

Petroica superciliosa Gould, Proc. Zool. Soc. (Lond.), 1846, p. 106, Jan. 26th, 1847: near Burdekin Lakes, Queensland.

Poecilodryas superciliosa yorki Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 83, May 25th, 1916: Cape York, Queensland.

DISTRIBUTION. North Queensland (Cape York to Burdekin Lakes).

369. POECILODRYAS CERVINIVENTRIS. BUFF-SIDED ROBIN.

Gould, Suppl., pl. 15 (pt. III.), Sept. 1st, 1859. Mathews, Vol. VIII., pt. 4, pl. 389, Oct. 13th, 1920.

Petroica (?) *cerviniventris* Gould, Proc. Zool. Soc. (Lond.), 1857, p. 221, Jan. 12th, 1858: Victoria River, Northern Territory.

Pachycephala superciliosa belcheri Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 40, April 2nd, 1912: Napier Broome Bay, North-west Australia.

Poecilodryas superciliosa derbyi Mathews, *ib.*, Vol. II., pt. 4, p. 75, Dec. 29th, 1913: Derby, North-west Australia.

Poecilodryas superciliosa gregori Mathews, *ib.*, pt. 5, p. 93, Sept. 24th, 1914: Gregory River, West Queensland.

DISTRIBUTION. North-west Australia to Western Queensland (Derby to Gregory River).

CCCV. Genus *TREGELLASIA*.

Tregellasia Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 110, Dec. 24th, 1912. Type (by original designation): *Eopsaltria capito* Gould.

370. TREGELLASIA CAPITO. LARGE-HEADED ROBIN.

Gould, Suppl., pl. 17 (pt. II.), Sept. 1st, 1855. Mathews, Vol. VIII., pt. 4, pl. 390, Oct. 13th, 1920.

Eopsaltria capito Gould, Proc. Zool. Soc. (Lond.), 1851, p. 285, June 14th, 1854: Brisbane River, Queensland.

Eopsaltria nana Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 372, June 1878: Cardwell, Queensland.

Tregellasia capito barroni Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916: Barron River, Queensland.

DISTRIBUTION. New South Wales (north) to Queensland (Cairns).

371. TREGELLASIA LEUCOPS. WHITE-THROATED FLY-ROBIN.

[*Leucophantes leucops* Salvadori, Ann. Mus. Civ. Gen., Vol. VII., p. 921, 1875 = 1876: Arfak Mountains, New Guinea. Extra-limital.]

Gould, Birds New Guinea, Vol. II., pl. 18 (pt. XIII.), 1882. Mathews, Vol. VIII., pt. 4, pl. 390, Oct. 13th, 1920.

Poecilodryas leucops albigularis Rothschild and Hartert, Nov. Zool., Vol. XIV., p. 459, Nov. 1st, 1907: Cape York, Queensland.

Tregellasia leucops paira Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916: Paira, North Queensland.

DISTRIBUTION. North Queensland (Cape York to Claudie River).

CCCVI. Genus *KEMPIELLA*.

Kempiella Mathews, Austral Av. Rec., Vol. II., pt. 1, p. 12, Aug. 2nd, 1913. Type (by original designation): *Kempiella kempi* Mathews.

372. KEMPIELLA KEMPI. YELLOW-BREASTED ROBIN.

Mathews, Vol. VIII., pt. 4, pl. 390, Oct. 13th, 1920.

Kempiella kempi Mathews, Austral Av. Rec., Vol. II., pt. I., p. 12, Aug. 2nd, 1913: Cape York, Queensland.

DISTRIBUTION. North Queensland (Cape York to Claudie River).

LIST OF BIRDS OF AUSTRALIA.

CCCVII. Genus *PACHYCEPHALA*.

Pachycephala Vigors, Trans. Linn. Soc. (Lond.), Vol. XIV., pt. 3, p. 444 (before July), 1825. Type (by original designation) : *Muscicapa pectoralis* Latham.

373. *PACHYCEPHALA PECTORALIS*. WHITE-THROATED THICKHEAD.

Gould, Vol. II., pl. 64 (pt. xxxii.), Sept. 1st, 1848 ; Vol. II., pl. 65 (pt. xviii.), March 1st, 1845. Mathews, Vol. VIII., pt. 4, pl. 391, Oct. 13th, 1920.

Turdus gutturalis Latham, Index Ornith. Suppl., p. xli. (after May 30th), 1801 : Port Jackson, New South Wales.
Not *Turdus gutturalis* P. L. S. Müller, Natursyst. Suppl., p. 144, 1776.

Muscicapa pectoralis Latham, Index Ornith. Suppl., p. li. (after May 30th), 1801 : New South Wales (Port Jackson).

Motacilla dubia Shaw and Nodder, Nat. Miscell., Vol. XXII., pl. 949, March 1st, 1811 : New South Wales (Sydney).

Laniarius albicollis Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIII., p. 299, Sept. 13th, 1817 :
"Batavia" error = New South Wales (Sydney).

Turdus lunularis Stephens in Shaw's Gen. Zool., Vol. XIII., pt. ii., p. 200, Feb. 18th, 1826 : New South Wales (Sydney).

Pachycephala fusca Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 240, Feb. 17th, 1827 : New South Wales (Sydney).

Pachycephala fuliginosa Vigors and Horsfield, *ib.*, p. 241, South Australia = Port Lincoln.

Pachycephala glaucura Gould, Birds Austr., pt. xviii. (Vol. II., pl. 65), March 1st, 1845 : Tasmania.

Pachycephala occidentalis Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 212, Jan. 1878 : West Australia = Albany.

Pachycephala queenslandica Reichenow, Ornith. Monatsb., 1899, p. 8, Jan. : Bellenden Ker Range, North Queensland.

Pachycephala meridionalis North, Rec. Austr. Mus., Vol. V., p. 126, Jan. 28th, 1904 : hills near Adelaide, South Australia.

Not *Pachycephala meridionalis* Büttikofer, Notes Leyden Mus., Vol. XV., p. 168, 1893.

Pachycephala mestoni De Vis, Ann. Queensl. Mus., Vol. VI., p. 44, 1905 : Bellenden Ker Range, North Queensland.

Pachycephala halmaturina A. G. Campbell, Emu, Vol. V., pt. iii., p. 140, Jan. 1st, 1906 : Kangaroo Island.

Pachycephala intermedia "North," A. G. Campbell, *ib.*, p. 142 : Kangaroo Island.

Not *Pachycephala intermedia* Layard, Ibis, 1876, p. 54.

Pachycephala gutturalis ashbyi Mathews, Nov. Zool., Vol. XVIII., p. 313, Jan. 31st, 1912 : Blackhall Ranges, South Queensland.

Pachycephala gutturalis youngi Mathews, *ib.* : (Lal Lal) Victoria.

Pachycephala temporalis Mathews, Emu, Vol. XV., pt. ii., p. 128, Oct. 1st, 1915 : Error only.

Pachycephala pectoralis bettingtoni Mathews, Birds Austr., Vol. VIII., pt. 4, p. 221, Oct. 13th, 1920 : Bellbird Bore, Mallee, Victoria.

Pachycephala pectoralis myponga Mathews, *ib.*, p. 222 : Myponga, Fleurieu Peninsula, South Australia.

Pachycephala pectoralis interjecta Mathews, *ib.* : Stirling Ranges, South-west Australia.

DISTRIBUTION. Extra-tropical Australia and Tasmania.

Not interior, but apparently as far north as Bellenden Ker Range, Queensland.

374. *PACHYCEPHALA ROBUSTA*. BIG-BILLED THICKHEAD.

Mathews, Vol. VIII., pt. 4, pl. 392, Oct. 13th, 1920.

Pachycephala robusta Masters, Pro. Linn. Soc. N.S.W., Vol. I., p. 49, Feb. 1876 : Cape York, Queensland.

Eopsaltria hilli Campbell, Emu, Vol. X., pt. iii., p. 168, Dec. 1st, 1910 : Hecla Island, Parry Harbour, North-west Australia.

Pachycephala gutturalis consobrina Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 76, June 28th, 1912 : Buchanan Island, Northern Territory.

Pachycephala gutturalis violetae Mathews, *ib.* : (Daly River) West Northern Territory.

Pachycephala gutturalis longirostris Zietz, South Austr. Ornith., Vol. I., pt. i., p. 15, Jan. 1st, 1914 : Melville Island, Northern Territory.

Not *Pachycephala longirostra* Gould, Synops. Birds Austr., pt. iii., pl. (55), 1838.

Pachycephala robusta borrooloola Mathews, Austral Av. Rec., Vol. III., pt. 6, p. 137, June 25th, 1918 : (Borrooloola) McArthur River, Northern Territory.

Pachycephala robusta intercedens Mathews, Birds Austr., Vol. VIII., pt. 4, p. 227, Oct. 13th, 1920 : Normanton, Queensland.

DISTRIBUTION. Northern Tropical Australia from Parry Harbour, North-west Australia, to Cape York, Queensland.

LIST OF BIRDS OF AUSTRALIA.

375. PACHYCEPHALA MELANURA. BLACK-TAILED THICKHEAD.

Gould, Vol. II., pl. 66 (pt. xxxii.), Sept. 1st, 1848. Mathews, Vol. VIII., pt. 4, pl. 393, Oct. 13th, 1920.

Pachycephala melanura Gould, Proc. Zool. Soc. (Lond.), 1842, p. 134, Feb. 1843: North-west Coast = Derby, North-west Australia.

Pachycephala melanura bynoei Mathews, Austral Av. Rec., Vol. III., pt. 6, p. 136, June 25th, 1918: Port Headland, Mid-west Australia.

DISTRIBUTION. Mid- and North-west Australia from Point Cloates to Derby.

CCCVIII. Genus *LEWINORNIS*.

Lewinornis Mathews, Austral Av. Rec., Vol. II., pts. 2 & 3, p. 57, Oct. 23rd, 1913. Type (by original designation): *Sylvia rufiventris* Latham.

376. LEWINORNIS RUFIVENTRIS. RUFOUS-BREASTED THICKHEAD.

Gould, Vol. II., pl. 67 (pt. iv.), Sept. 1st, 1841; Vol. II., pl. 68 (pt. xxxi.), June 1st, 1848. Mathews, Vol. VIII., pt. 4, pl. 394, Oct. 13th, 1920.

Turdus prasinus Latham, Index Ornith. Suppl., p. xli. (after May 30th), 1801: New South Wales.
Not *Turdus prasinus* Sparrman, Mus. Carlson, fax. IV., No. 86-87, 1789.

Sylvia rufiventris Latham, Index Ornith. Suppl., p. liv. (after May 30th, 1801): New South Wales (Sydney).

Turdus pectoralis Lewin, Birds New Holland, pl. viii., 1808: New South Wales.

Not *Muscicapa pectoralis* Latham, Index Ornith. Suppl., p. li., 1801.

Nor *Turdus pectoralis* Latham, Index Ornith., p. 357, 1790.

Laniarius rubrigaster Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIII., p. 300, Sept. 13th, 1817: "Africa" = New South Wales.

Pachycephala striata Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 240, Feb. 17th, 1827: New South Wales.

Lanius macularius Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 257 (pref. June 29th), 1830: New South Wales.

Pachycephala falcata Gould, Proc. Zool. Soc. (Lond.), 1842, p. 134, Feb. 1843: Port Essington, Northern Territory.

Pachycephala pallida Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 224, May 1878: Gulf of Carpentaria, Queensland.

Pachycephala rufiventris colletti Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912: Parry's Creek, North-west Australia.

Pachycephala rufiventris minor Zietz, South Austr. Ornith., Vol. I., pt. i., p. 15, Jan. 1st, 1914: Melville Island, Northern Territory.

Lewinornis rufiventris maudeæ S. A. White, Trans. Proc. Roy. Soc. South Austr., Vol. XXXIX., p. 749, Dec. 1915: Everard Ranges, Central Australia.

Lewinornis rufiventris didimus Mathews, Austral Av. Rec., Vol. III., pt. 6, p. 159, June 25th, 1918: South-west Australia.

Lewinornis rufiventris dulcior Mathews, Birds Austr., Vol. VIII., pt 5, p. 244, Dec. 15th, 1920: Watson River, Cape York Peninsula, North Queensland.

Lewinornis rufiventris gawlerensis Mathews, *ib.*: Wataker, Gawler Ranges, South Australia.

Lewinornis rufiventris waddelli Mathews, *ib.*: Warunda Creek, Eyre's Peninsula, South Australia.

DISTRIBUTION. Australia (also through the interior). Not Tasmania.

CCCIX. Genus *GILBERTORNIS*.

Gilbertornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 110, Dec. 24th, 1912. Type (by original designation): *Pachycephala rufogularis* Gould.

377. GILBERTORNIS RUFOGULARIS. RED-LORED THICKHEAD.

Gould, Vol. II., pl. 70 (pt. xviii.), March 1st, 1845. Mathews, Vol. VIII., pt. 5, pl. 395, Dec. 15th, 1920.

Pachycephala rufogularis Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, July 1841: South Australia (within two miles of Adelaide).

Gilbertornis rufogularis zanda Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916: Bolton's Crab-hole, Mallee, Victoria.

DISTRIBUTION. Adjoining parts of Victorian and South Australian Mallee.

LIST OF BIRDS OF AUSTRALIA.

378. GILBERTORNIS INORNATUS. BLACK-LORED THICKHEAD.

Gould, Vol. II., pl. 71 (pt. xxviii.), March 1st, 1845. Mathews, Vol. VIII., pt. 5, pl. 395, Dec. 15th, 1920.

Pachycephala inornata Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, July 1841 : South Australia.

Pachycephala gilbertii Gould, Proc. Zool. Soc. (Lond.), 1844, p. 107, Oct. : Western Australia (York district).

Gilbertornis gilberti mallee Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Gerahmin, Mallee, Victoria.

DISTRIBUTION. South-west Australia ; Mallee of South Australia and Victoria (New South Wales ?).

CCCX. Genus *ALISTERORNIS*.

Alisterornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Pachycephala lanioides* Mathews.

379. ALISTERORNIS LANIOIDES. WHITE-BELLIED THICKHEAD.

Gould, Vol. II., pl. 69 (pt. xvii.), Dec. 1st, 1844. Mathews, Vol. VIII., pt. 5, pl. 396, Dec. 15th, 1920.

Pachycephala lanioides Gould, Proc. Zool. Soc. (Lond.), 1839, p. 142, March 1840 : North-west Coast Australia = Derby, North-west Australia.

Pachycephala freitorum De Vis, Proc. Roy. Soc. Queensl., Vol. VI., pt. 5, p. 237, 1889 : Kimberley = Normanton, Gulf of Carpentaria, Queensland.

Pachycephala lanioides buechanani Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 77, June 28th, 1912 : Buchanan Islet, Northern Territory.

Alisterornis lanioides carnarvoni Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 75, Dec. 29th, 1913 : Carnarvon, Mid-west Australia.

DISTRIBUTION. From Carnarvon, Mid-west Australia, northwards (coastal in mangroves) to the Gulf of Carpentaria, Queensland.

CCCXI. Genus *TIMIXOS*.

Timixos Blyth, Journ. As. Soc. Bengal, Vol. XI., p. 194 (after Feb. 26th), 1842. Type (by monotypy) : *Timixos meruloides* Blyth = *Pachycephala olivacea* Vigors and Horsfield.

380. TIMIXOS OLIVACEUS. OLIVE THICKHEAD.

Gould, Vol. II., pl. 73 (pt. xxii.), March 1st, 1845. Mathews, Vol. VIII., pt. 5, pl. 396, Dec. 15th, 1920.

Pachycephala olivacea Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 241, Feb. 17th, 1827 : No locality = Tasmania.

Timixos meruloides Blyth, Journ. As. Soc. Bengal, Vol. XI., p. 195 (after Feb. 26th), 1842 : Locality unknown = Tasmania.

Pachycephala olivacea tregellasi Mathews, Nov. Zool., Vol. XVIII., p. 315, Jan. 31st, 1912 : Olinda, Victoria.

Pachycephala olivacea macphersonianus H. L. White, Emu, Vol. XIX., pt. iv., p. 273, April 1st = May 29th, 1920 : Macpherson Range, Queensland.

DISTRIBUTION. Tasmania and islands of Bass Straits ; Victoria, New South Wales, South Queensland.

CCCXII. Genus *MATTINGLEYA*.

Mattingleya Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Pachycephala peninsulæ* Hartert.

381. MATTINGLEYA GRISEICEPS. GREY THICKHEAD (ROBIN).

[*Pachycephala griseiceps* Gray, Proc. Zool. Soc. (Lond.), 1858, p. 178, July 13th : Aru Islands. Extra-limital.]

Mathews, Vol. VIII., pt. 5, pl. 397, Dec. 15th, 1920.

Eopsaltria (?) *inornata* Ramsay, Proc. Zool. Soc. (Lond.), 1874, p. 604, April 1st, 1875 : Rockingham Bay, Queensland.

Pachycephala peninsulæ Hartert, Bull. Brit. Ornith. Club, Vol. VIII., p. xxxiii., Feb. 27th, 1899 : Cape York, Queensland.

LIST OF BIRDS OF AUSTRALIA.

Pachycephala enidæ Mathews, Nov. Zool., Vol. XVIII., p. 317, Jan. 31st, 1912. New name for *Eopsaltria* (?) *inornata* Ramsay.

DISTRIBUTION. North Queensland (Cape York to Rockingham Bay).

CCCXIII. Genus *MUSCITREA*.

Muscitrea Blyth, Journ. As. Soc. Bengal, Vol. XVI., pt. 1., p. 121, Feb. 1847. Type (by monotypy) : *Tephrodornis grisola* Blyth.

Hyloterpe Bonaparte, Consp. Gen. Av., Vol. I., pt. 1., p. 329, June 1850. Type (by monotypy) (*Cf.* Austral Av. Rec., Vol. II., p. 57, 1913, *Hyloterpe*, Cabanis Archiv. für Nat. Wiegman, 1847, p. 321 (after Nov.), being a *nomen nudum*) : *Pachycephala orpheus* Jardine.

Musciterpe. Gen. Nov. Type *Pachycephala simplex* Gould,

382. *MUSCITREA SIMPLEX*. BROWN THICKHEAD.

Gould, Vol. II., pl. 72 (pt. xxxi), June 1st, 1848. Mathews, Vol. VIII., pt. 5, pl. 397, Dec. 15th, 1920.

Pachycephala simplex Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843 : Port Essington, Northern Territory.

Pachycephala grisola riordani Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912 : Melville Island, Northern Territory.

DISTRIBUTION. Northern Territory.

CCCXIV. Genus *PENEENANTHE*.

Peneenanthe Mathews, Birds Austr., Vol. VIII., pt. 5, p. 273, Dec. 15th, 1920. Type (by original designation) : *Eopsaltria leucura* Gould.

383. *PENEENANTHE LEUCURA*. MANGROVE ROBIN.

Gould, Suppl., pl. 18 (pt. v.), Aug. 1st, 1869. Mathews, Vol. VIII., pt. 5, pl. 398, Dec. 15th, 1920.

Eopsaltria leucura Gould, Birds Austr., Suppl., pt. v. (pl. 18), Aug. 1st, 1869, or Ann. Mag. Nat. Hist., Ser. IV., Vol. IV., p. 108, Aug. 1st, 1869 : Cape York, Queensland.

[*Myiolestes pulverulentus* Bonaparte, Consp. Gen. Av., Vol. I., p. 358, Feb. 3rd, 1851. *Nomen nudum*.]

Poecilodryas cinereiceps Hartert, Nov. Zool., Vol. XII., p. 231, Feb. 11th, 1905 : near Hampton Harbour, Mid-west Australia.

Pachycephala leucura alligator Mathews, Nov. Zool., Vol. XVIII., p. 312, Jan. 31st, 1912 : Alligator River, Northern Territory.

Pachycephala leucura connectens Mathews, *ib.* : Point Torment error = Napier Broome Bay, North-west Australia.

Pachycephala leucura greda Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 40, April 2nd, 1912 : Melville Island, Northern Territory.

Quoyornis leucurus normani Mathews, *ib.*, Vol. II., pt. 5, p. 93, Sept. 24th, 1914 : Norman River, North Queensland.

DISTRIBUTION. Coastal in mangroves throughout tropical Northern Australia.

CCCXV. Genus *QUOYORNIS*.

Quoyornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Muscicapa georgiana* Quoy et Gaimard.

384. *QUOYORNIS GEORGIANUS*. WHITE-BREASTED SHRIKE-ROBIN.

Gould, Vol. III., pl. 13 (pt. xxiii.), June 1st, 1846. Mathews, Vol. VIII., pt. 5, pl. 398, Dec. 15th, 1920.

Muscicapa georgiana Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 175 (pref. June 29th), 1830 : King George Sound, West Australia.

Eopsaltria leucogaster Gould, Proc. Zool. Soc. (Lond.), 1846, p. 19, May : Perth, West Australia.

Quoyornis georgianus warreni Mathews, Austral Av. Rec., Vol. III., pt. iii., p. 59, Apl. 7th, 1916 : Warren River (South), West Australia.

DISTRIBUTION. South-west Australia.

LIST OF BIRDS OF AUSTRALIA.

CCCXVI. Genus *EOPSALTRIA*.

Eopsaltria Swainson, Fauna Boreal. Amer., p. 492, 1831=Feb. 1832. Type (by original designation): *Motacilla australis* White.

385. *EOPSALTRIA AUSTRALIS*. YELLOW-BREASTED SHRIKE-ROBIN.

Gould, Vol. III., pl. 11 (pt. XIII.), Dec. 1st, 1843. Mathews, Vol. VIII., pt. 5, pl. 399, Dec. 15th, 1920.

- Motacilla australis* White, Journ. Voy. New South Wales, p. 239, pl. (before Aug.), 1790 : New South Wales.
Todus flavigaster Latham, Index Ornith., Vol. I., p. 268 (before Dec. 9th), 1790 : New South Wales (Sydney).
Muscicapa australis Latham, Index Ornith. Suppl., p. 1. (after May 30th), 1801 : New South Wales (Sydney).
Muscicapa flavigastra Latham, *ib.*, p. lii. : New South Wales (Sydney).
Sylvia flavigastra Latham, *ib.*, p. liv. : New South Wales (Sydney).
Todus xanthogaster Shaw, Gen. Zool., Vol. VIII., pt. I., p. 132, 1812 : emendation only.
Sylvia chrysogastra Stephens, in Shaw's Gen. Zool., Vol. X., p. 726, Sept. 1817 : emendation only.
Muscicapa griseicapilla Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 489, May 30th, 1818 : "Timor" errore=New South Wales (Sydney).
Eopsaltria flavicollis Swainson, Classif. Birds, Vol. II., p. 250, July 1st, 1837 : based on Lewin's pl. 23 : New South Wales (Sydney).
Eopsaltria parvulus Gould, Synops. Birds Austr., pt. iv., App., p. 2, April 1st, 1838 : New South Wales (Sydney).
Eopsaltria chrysorrhos Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. IV., p. 109, Aug. 1st, 1869 : eastern parts of New South Wales.
Eopsaltria magnirostris Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. IV., p. 109, Aug. 1st, 1869 (ex Ramsay MS.) : Rockingham Bay, North Queensland.
Eopsaltria jacksoni Le Souëf, Emu, Vol. IX., pt. II., p. 70, pl. III., Oct. 1st, 1909 : Herberton Range, North Queensland.
Pachycephala australis viridior Mathews, Nov. Zool., Vol. XVIII., p. 316, Jan. 31st, 1912 : (Selby) Victoria.
Eopsaltria coomooboolaroo Campbell, Emu, Vol. XII., pt. III., p. 191, Jan. 1st, 1913 : Coomooboolaroo, Queensland.
Eopsaltria australis austina Mathews, Emu, Vol. XIV., pt. I., p. 60, July 1st, 1914 : Cobbora, New South Wales.

DISTRIBUTION. Eastern Australia from the Rockingham Bay district, Queensland, to Victoria.

386. *EOPSALTRIA GRISEOGULARIS*. GREY-BREASTED SHRIKE-ROBIN.

Gould, Vol. III., pl. 12 (pt. XIII.), Dec. 1st, 1843. Mathews, Vol. VIII., pt. 5, pl. 399, Dec. 15th, 1920.

- Muscicapa gularis* Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 176 (pref. June 29th), 1830 : King George Sound, West Australia.
 Not *Muscicapa gularis* Stephens in Shaw's Gen. Zool., Vol. X., p. 392, 1817.
Eopsaltria griseogularis Gould, Synops. Birds Austr., pt. iv., App., p. 2, April 1st, 1838 : Swan River, West Australia.
Pachycephala australis rosinae Mathews, Nov. Zool., Vol. XVIII., p. 317, Jan. 31st, 1912 : Eyre's Peninsula, South Australia.
Eopsaltria griseogularis wongani Mathews, Birds Austr., Vol. VIII., pt. v., p. 299, Dec. 15th, 1920 : Wongan Hills, West Australia.
Eopsaltria griseogularis quoyi Mathews, Birds Austr., Vol. VIII., pt. v., p. 399, Dec. 15th, 1920 : Albany, West Australia.

DISTRIBUTION. South-west Australia to South Australia, from Perth, S.W.A., to Eyre's Peninsula, S.A.

CCCXVII. Genus *RHIPIDURA*.

- Rhipidura* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 246, Feb. 17th, 1827. Type (by subsequent designation, Gray, 1840, p. 32) : *Muscicapa flabellifera* Gmelin.
Ripidicala Boie, Neues Staats Magazin (Schleswig), Vol. I., Heft 2, p. 489, 1832. Type (by subsequent designation, Mathews, List Birds Austr., p. 184, 1913) : *Muscicapa flabellifera* Gmelin.
Rhipidicidura "Boie" Gray, Handl. Gen. Sp. Birds, B.M., pt. I., p. 330 (before Feb. 2nd, 1870), 1869. *Nom. nud.* (error for above ?):

LIST OF BIRDS OF AUSTRALIA.

386. RHIPIDURA FLABELLIFERA. FANTAIL.

Muscicapa flabellifera Gmelin, Syst. Nat., pt. II., p. 943, April 20th, 1789 : Dusky Sound, New Zealand. Extra-limital.]

Gould, Vol. II., pl. 83 (pt. I.), Dec. 1st, 1840. Mathews, Vol. IX., pt. I., pls. 400, 401, Feb. 15th, 1921.

Rhipidura albiscapa Gould, Birds Austr., pt. I. (Vol. II., pl. 83), Dec. 1st, 1840 : Tasmania.

Rhipidura nassata " Ill." Bonaparte, Consp. Gen. Av., Vol. I., pt. I., p. 323, June 1850. *Nom. nud* : Tasmania.

Rhipidura preissi Cabanis, Mus. Heine, Vol. I., p. 57 (after Oct. 23rd), 1851 : West Australia.

Rhipidura saturata Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 311, March 26th, 1879 : Tasmania.
Not *Rhipidura saturata* Salvadori, Ann. Mus. Civ. Gen., Vol. XII., p. 323, 1875.

Rhipidura diemenensis Sharpe, Ibis, July 1879, p. 368. New name for *R. saturata* Sharpe.

Rhipidura sharpei Ramsay, Proc. Linn. Soc. N.S.W., Vol. IV., p. 318, Dec. 1st, 1879. New name for *R. saturata* Sharpe.

Rhipidura albiceps Diggles, Ornith. Austr., pt. III., 1866. Error for *albiscapa* only.

Rhipidura phasiana De Vis, Proc. Roy. Soc. Queensl., Vol. I., pt. III., p. 156, after Sept. 1884 : Norman River, North-west Queensland.

Rhipidura albicauda North, Ibis, July 1895, p. 340 : Stokes' Pass, Central Australia.

Rhipidura albiscapa alisteri Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 87, April 27th, 1911 : Homebush, New South Wales.

Rhipidura flabellifera victoriæ Mathews, Nov. Zool., Vol. XVIII., p. 318, Jan. 31st, 1912 : (Ringwood) Victoria.

Rhipidura flabellifera whitei Mathews, *ib.* : (Grange) South Australia.

Rhipidura flabellifera subphasiana Mathews, *ib.*, p. 319 : Derby, North-west Australia.

Rhipidura flabellifera harterti Mathews, *ib.* : Inkerman, Queensland.

Rhipidura flabellifera frerei Mathews, *ib.* : Bartle Frere, North Queensland.

Rhipidura flabellifera buechanani Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 90, Sept. 18th, 1912 : Buchanan Island, Northern Territory.

DISTRIBUTION. Australia and Tasmania.

CCCXVIII. Genus *HOWEAVIS*.

Howeavis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Muscicapa rufifrons* Latham.

387. HOWEAVIS RUFIFRONS. RUFOUS FANTAIL.

Gould, Vol. II., pl. 84 (pt. XXIII.), June 1st, 1846 ; Gould, Birds New Guinea, Vol. II., pl. 32 (pt. II.), Jan. 1st, 1876. Mathews, Vol. IX., pt. I., pl. 402, Feb. 15th, 1921.

Muscicapa rufifrons Latham, Index Ornith. Suppl., p. 1. (after May 30th), 1801 : New South Wales (Sydney).

Rhipidura dryas Gould, Proc. Zool. Soc. (Lond.), 1842, p. 132, Feb. 1843 : Port Essington, Northern Territory.

Rhipidura intermedia North, Vict. Naturalist, Vol. XIX., p. 101, Nov. 6th, 1902 : Bellenden Ker Range, North Queensland.

Rhipidura mayi Ashby, Emu, Vol. XI., pt. I., p. 41, July 1st, 1911 : Anson Bay, Northern Territory.

Rhipidura rufifrons inexpectata Mathews, Nov. Zool., Vol. XVIII., p. 319, Jan. 31st, 1912 : (Dandenong Ranges) Victoria.

Rhipidura rufifrons kempfi Mathews, *ib.*, p. 320, Jan. 31st, 1912 : Cape York, North Queensland.

Rhipidura rufifrons parryi Mathews, *ib.* : (Parry's Creek) North-west Australia.

DISTRIBUTION. Northern Tropical Australia and extending down the east coast into Victoria, but only to Napier Broome Bay on the west.

CCCXIX. Genus *SETOSURA*.

Setosura Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 58, Oct. 23rd, 1913. Type (by original designation) : *Rhipidura setosa melvillensis* Mathews.

LIST OF BIRDS OF AUSTRALIA.

388. SETOSURA SETOSA. NORTHERN FANTAIL.

[*Muscipeta setosa* Quoy et Gaimard, Voy. de l'Astrol., Vol. I., p. 181, pl. 4, f. 4 (pref. June 29th), 1830: New Ireland. Extra limital.]

Gould, Vol. II., pl. 85 (pt. xxix.), Dec. 1st, 1847. Mathews, Vol. IX., pt. i., pl. 403, Feb. 15th, 1921.

Rhipidura isura Gould, Proc. Zool. Soc. (Lond.), 1840, p. 174, July 1841: Port Essington, Northern Territory.

Rhipidura superciliosa Ramsay, Proc. Zool. Soc. (Lond.), 1874, p. 604, April 1st, 1875: Rockingham Bay, Queensland.

Rhipidura setosa melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912: Melville Island, Northern Territory.

Rhipidura setora [sic] *tormenti* Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 90, Sept. 18th, 1912: Point Torment, North-west Australia.

Setosura setosa macgillivrayi Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Leichhardt River, Queensland.

Setosura setosa davidi Mathews, Birds Austr., Vol. IX., pt. i., p. 31, Feb. 15th, 1921. New name for preceding.

DISTRIBUTION. Northern Tropical Australia (apparently missing from Cape York).

CCCXX. Genus *LEUCOCIRCA*.

Leucocirca Swainson, Naturalists' Library (Jardine) Orn., Vol. X., Flycatchers, p. 126, pl. xi., May 19th, 1838.

Type (by monotypy): *Leucocirca laticauda* = *Turdus leucophrys* Latham.

Sauloprocta Cabanis, Mus. Heine, Vol. I., p. 57 (after Oct. 23rd), 1851. Type (by monotypy): *Rhipidura motacilloides* Vigors and Horsfield = *Turdus leucophrys* Latham.

389. LEUCOCIRCA LEUCOPHRYS. BLACK AND WHITE FANTAIL.

Gould, Vol. II., pl. 86 (pt. xxxi.), June 1st, 1848. Mathews, Vol. IX., pt. i., pl. 404, Feb. 15th, 1921.

Turdus leucophrys Latham, Index Ornith. Suppl., p. xlv. (after May 30th), 1801: New South Wales (Sydney).

Muscicapa tricolor Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 490, May 30th, 1818: "Timor" error = New South Wales (Sydney).

Rhipidura motacilloides Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 248, Feb. 17th, 1827: George River, New South Wales.

Leucocirca laticauda Swainson, Nat. Libr. (Jardine), Vol. X., Flycatchers, p. 130, pl. xi., May 19th, 1818: No locality = New South Wales (Sydney).

Rhipidura picata Gould, Introd. Birds Austr., 8vo ed., p. 40, Aug. 1st, 1848: Port Essington, Northern Territory.

Rhipidura tricolor utingu Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 90, Sept. 18th, 1902: Cape York, Queensland.

Leucocirca leucophrys carteri Mathews, Birds Austr., Vol. IX., pt. i., p. 41, Feb. 15th, 1921: Broome Hill, South-west Australia.

DISTRIBUTION. Australia. Not Tasmania.

CCCXXI. Genus *MASTERSORNIS*.

Mastersornis Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 78, July 21st, 1917. Type (by original designation): *Todus rubecula* Latham.

Myiagra Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 250, Feb. 17th, 1827. Type (by subsequent designation, Gray, 1840, p. 32): *M. rubeculoides* = *Todus rubecula* Latham.

Not *Myiagrus* Bois, Isis, 1826, Heft x., col. 973 = *Myiagrus* cf. Wied., 1831.

390. MASTERSORNIS RUBECULA. LEADEN FLYCATCHER.

Gould, Vol. II., pl. 89 (pt. xxiii.), June 1st, 1846; Vol. II., pl. 90 (pt. xxxi.), June 1st, 1848. Mathews, Vol. IX., pt. i., pl. 405, Feb. 15th, 1921.

Todus rubecula Latham, Index Ornith. Suppl., p. xxxii. (after May 30th), 1801: New South Wales (Sydney).

Myiagra rubeculoides Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 253, Feb. 17th, 1827: New South Wales (Sydney).

LIST OF BIRDS OF AUSTRALIA.

Myiagra plumbea Vigors and Horsfield, *ib.* : New South Wales.

Muscicapa leucogastra Blyth, Journ. As. Soc. Bengal, Vol. XIII., p. 386, 1844, 1845 : " Probably Malayan " = New South Wales (Sydney).

Muscicapa rubecula Blyth, *ib.* : No locality = New South Wales (Sydney).

Myiagra concinna Gould, Birds Austr., pt. xxxi. (Vol. II., pl. 90), June 1st, 1848 : Port Essington, Northern Territory.

Myiagra grisea Pucheran, Voy. Pôle. Sud., Vol. III., p. 78, Oct. 10th, 1853 : Port Essington, Northern Territory.

Myiagra rubecula yorkei Mathews, Nov. Zool., Vol. XVIII., p. 321, Jan. 31st, 1912 : Cape York, Queensland.

Myiagra rubecula ringwoodi Mathews, *ib.* : (Ringwood) Victoria.

Myiagra rubecula melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 41, April 2nd, 1912 : Melville Island, Northern Territory.

Myiagra rubecula broomei Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 90, Sept. 18th, 1912 : Napier Broome Bay, North-west Australia.

DISTRIBUTION. Northern Australia, extending down on the east coast into Victoria, but only as far as Napier Broome Bay on the west.

391. MASTERSORNIS CYANOLEUCUS. SATIN FLYCATCHER.

Gould, Vol. II., pl. 91 (pt. xxxi.), June 1st, 1848. Mathews, Vol. IX., pt. II., pl. 406, April 15th, 1921.

Platyrrhynchos cyanoleucus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVII., p. 11, Dec. 26th, 1818 : " Timor " error = New South Wales (Sydney).

Myiagra nitida Gould, Synops. Birds Austr., pt. iv., App., p. 1, April 1st, 1838 : New South Wales (Sydney).

Myiagra nitida robinsoni Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912 : Cooktown, North Queensland.

DISTRIBUTION. Eastern Australia, from North Queensland to Victoria and Tasmania.

392. MASTERSORNIS RUFICOLLIS. BROAD-BILLED FLYCATCHER.

[*Platyrrhynchos ruficollis* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVII., p. 13, Dec. 26th, 1818 : " Nouvelle Hollande " = Timor.

Synonym : *Myiagra latirostris* Swainson, Naturalist's Library (Jardine) Orn., Vol. X., Flycatchers, pp. 208 and 255, May 19th, 1838 : Loc. unknown ; in Paris Museum = Timor. Extra-limital.]

Gould, Vol. II., pl. 92 (pt. xxxii.), Sept. 1st, 1848. Mathews, Vol. IX., pt. II., pl. 406, April 15th, 1921.

Myiagra latirostris Gould, Proc. Zool. Soc. (Lond.), 1840, p. 172, July 1841 : Port Essington, Northern Territory. Not *Myiagra latirostris* Swainson, 1838, as above.

Myiagra latirostris kempfi Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912 : Cape York, North Queensland.

Myiagra latirostris cooperi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912 : Melville Island, Northern Territory.

Myiagra latirostris tormenti Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 91, Sept. 18th, 1912 : Point Torment, North-west Australia.

DISTRIBUTION. Tropical Northern Australia.

CCCXXII. Genus *MACHAERIRHYNCHUS*.

Machaerirhynchus Gould, Birds Austr. Suppl. (pt. i.), pl. 11, March 15th, 1851. Type (by monotypy) : *M. flaviventer* Gould.

393. MACHAERIRHYNCHUS FLAVIVENTER. YELLOW-BREASTED WHERRY-BILL.

Gould, Suppl., pl. 11 (pt. i.), March 15th, 1851. Mathews, Vol. IX., pt. 2, pl. 407, April 15th, 1921.

Machaerirhynchus flaviventer Gould, Birds Austr. Suppl., pt. i. (pl. 11), March 15th, 1851 : Cape York, Queensland.

Machaerirhynchus flaviventer secundus Mathews, Nov. Zool., Vol. XVIII., p. 322, Jan. 31st, 1912 : Bartle Frere, North Queensland.

DISTRIBUTION. North Queensland (Cape York to Cardwell).

LIST OF BIRDS OF AUSTRALIA.

CCCXXIII. Genus *SEISURA*.

Seisura Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 249, Feb. 17th, 1827. Type (by monotypy) : *Turdus inquietus* Latham.

394. *SEISURA INQUIETA*. RESTLESS FLYCATCHER.

Gould, Vol. II., pl. 87 (pt. xxxii.), Sept. 1st, 1848. Mathews, Vol. IX., pt. 2, pl. 407, April 15th, 1921.

Turdus inquietus Latham, Index Ornith. Suppl., p. xl. (after May 30th), 1801 : New South Wales (Sydney).

Turdus dubius Latham, *ib.* : Same locality.

Not *Turdus dubius* Bechstein, Gemein. Naturg. Deutschl., Vol. IV., p. 240 (pref. March), 1795.

Turdus volitans Latham, *ib.*, p. xli. : same locality.

Turdus muscicola Latham, *ib.*, p. xliii. : same locality.

Seisura nana Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. VI., p. 224, Sept. 1st, 1870 : "Northern Australia" = Northern Territory (West).

Seisura inquieta nea Mathews, Nov. Zool., Vol. XVIII., p. 323, Jan. 31st, 1912 : (Dawson River) Queensland.

Seisura inquieta westralensis Mathews, *ib.* : Broome Hill, South-west Australia.

Seisura inquieta rogersi Mathews, Birds Austr., Vol. IX., pt. 2, p. 68, April 15th, 1921 : Derby, North-west Australia.

DISTRIBUTION. Australia. Not Tasmania (straggler).

CCCXXIV. Genus *OPHRYZONE*.

Ophryzone Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 383, Oct. 1st. Type (by monotypy) : *Arses kaupi* Gould.

395. *OPHRYZONE KAUPI*. BLACK-BREASTED FLYCATCHER.

Gould, Suppl., pl. 10 (pt. i.), March 15th, 1851. Mathews, Vol. IX., pt. 2, pl. 408, April 15th, 1921.

Arses kaupi Gould, Birds Austr. Suppl., pt. i. (pl. 10), March 15th, 1851 : North coast of Australia=Cairns, Queensland.

Arses terraereginae Campbell, Proc. Roy. Soc. Vict., n.s., Vol. VII., p. 25, Jan. 1895 : Bloomfield district, North Queensland.

DISTRIBUTION. North Queensland (Cairns district).

CCCXXV. Genus *PROSEISURA*.

Proseisura Mathews, Bull. Brit. Orn. Club, Vol. XLI., p. 35, Nov. 30th, 1920. Type (by original designation) : *Arses lorealis* De Vis.

396. *PROSEISURA LOREALIS*. FRILL-NECKED FLYCATCHER.

Mathews, Vol. IX., pt. 2, pl. 408, April 15th, 1921.

Arses lorealis De Vis, Proc. Linn. Soc. N.S.W., Ser. II., Vol. X., p. 171, Sept. 9th, 1895 : Cape York, Queensland.

Arses candidior "De Vis" Le Souëf, Ibis, July 1897, p. 397 : Cape York. *Nomen nudum*.

DISTRIBUTION. North Queensland (Cape York).

CCCXXVI. Genus *PIEZORHYNCHUS*.

Piezorhynchus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841. Type (by monotypy) : *P. nitidus* Gould = *Drymophila alecto* Temminck et Laugier subsp.

397. *PIEZORHYNCHUS ALECTO*. SHINING FLYCATCHER.

[*Drymophila alecto* Temminck et Laugier, Planch. Color. d'Ois., 72^e livr. (Vol. IV., pl. 430), April 25th, 1827 : "Celebes," error=Ternate. Extra-limital.]

Gould, Vol. II., pl. 88 (pt. xiv.), March 1st, 1844. Mathews, Vol. IX., pt. 2, pl. 409, April 15th, 1921.

LIST OF BIRDS OF AUSTRALIA.

Piezorhynchus nitidus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841 : North-west Coast of Australia = Port Essington, Northern Territory.

Piezorhynchus nitidus wardelli Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 99, July 13th, 1911 : Cooktown, Queensland.

Monarcha alecto melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912 : Melville Island, Northern Territory.

Monarcha alecto [sic] *tormenti* Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 91, Sept. 18th, 1912 : Point Torment, North-west Australia.

Monarcha alecto campbelli Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 126, Dec. 24th, 1912 : Cape York, Queensland.

DISTRIBUTION. Tropical Northern Australia.

CCCXXVII. Genus *SYMPOSIACHRUS*.

Symposiachrus Bonaparte, Comptes Rendus Acad. Sci., Paris, Vol. XXXVIII., p. 650, April (7th), 1854. Type (by original designation) : *Drymophila trivirgata* Temminck et Laugier.

398. *SYMPOSIACHRUS TRIVIRGATUS*. SPECTACLED FLYCATCHER.

[*Drymophila trivirgata* Temminck et Laugier, Planch Color. d'Ois, 70° livr. (Vol. IV., pl. 418, fig. 1), Dec. 27th, 1829 : Timor Extra-limal.]

Gould, Vol. II., pl. 96 (pt. xxxiii.), Dec. 1st, 1848 ; Suppl., pl. 13 (pt. v.), Aug. 1st, 1869. Mathews, Vol. IX., pt. 2, pl. 410, April 15th, 1921.

Monarcha gouldii Gray, Proc. Zool. Soc. (Lond.), 1860, p. 352, Oct. 1st : "Australia" = New South Wales.

Monarcha albiventris Gould, Proc. Zool. Soc. (Lond.), 1866, p. 217, Oct. 1st : Cape York, Queensland.

Piezorhynchus medius Sharpe, Rep. Zool. Coll. "Alert," p. 14 (pref. June 20th), 1884 : Port Molle, Queensland.

Symposiachrus trivirgatus stalkerii Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 59, April 7th, 1916 : Inkerman, Queensland.

DISTRIBUTION. Eastern Australia, from Cape York to New South Wales.

CCCXXVIII. Genus *CARTERORNIS*.

Carterornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Monarcha leucotis* Gould.

399. *CARTERORNIS LEUCOTIS*. WHITE-EARED FLYCATCHER.

Gould, Suppl., pl. 12 (pt. 1), March 15th, 1851. Mathews, Vol. IX., pt. 2, pl. 410, April 15th, 1921.

Monarcha leucotis Gould, in Jardine's Contr. Ornith., 1850, p. 105* : Cape York, Queensland.

Carterornis leucotis gracemeri Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Gracemere, Queensland.

DISTRIBUTION. Queensland (New South Wales ?).

CCCXXIX. Genus *MONARCHA*.

Monarcha Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 254, Feb. 17th, 1827. Type (by monotypy) : *Muscipeta carinata* Swainson = *Muscicapa melanopsis* Vieillot.

400. *MONARCHA MELANOPSIS*. BLACK-FACED FLYCATCHER.

Gould, Vol. II., pl. 95 (pt. xxv.), Dec. 1st, 1846. Mathews, Vol. IX., pt. 2, plate 411, April 15th, 1921.

Muscicapa melanopsis Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXI., p. 450, May 30th, 1818 : New South Wales (Sydney).

Muscipeta carinata Swainson, Zool. Illustr., Series I., Vol. III. (pt. vi.), pl. 147 (April), 1823 : New South Wales (Sydney).

Monarcha canescens Salvadori, Ann. Mus. Av. Genova, Vol. VII., p. 991, "1875" = 1876 : Cape York, Queensland.

Monarcha kurandi Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Cape York, Queensland.

LIST OF BIRDS OF AUSTRALIA.

Monarcha melanopsis pallida Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: Cape York, Queensland.

Monarcha canescens claudia Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 71, July 21st, 1917: Claudie River, North Queensland.

DISTRIBUTION. Eastern Australia from Cape York, North Queensland, to New South Wales.

FAMILY CAMPOPHAGIDÆ.

CCCXXX. Genus *PTEROPODOCYS*.

Pteropodocys Gould, Birds Austr., pt. xxv. (Vol. II., pl. 59), Dec. 1st, 1846. Type (by monotypy): *Graucalus phasianellus* Gould = *Ceblepyris maxima* Rüppell.

401. *PTEROPODOCYS MAXIMA*. GROUND CUCKOO-SHRIKE.

Gould, Vol. II., pl. 59 (pt. xxv.), Dec. 1st, 1846. Mathews, Vol. IX., pt. 3, pl. 412, June 20th, 1921.

Ceblepyris maxima Rüppell, Mus. Senckenb., Vol. III., pt. I., p. 28, 1839: "New Holland" = New South Wales.
Graucalus phasianellus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 142, March 1840: Liverpool Plains, New South Wales.

Pteropodocys maxima neglecta Mathews, Nov. Zool., Vol. XVIII., p. 325, Jan. 31st, 1912: Broome Hill, South-west Australia.

Pteropodocys maxima pallida Mathews, *ib.*: Alexandra, Northern Territory.

DISTRIBUTION. Australia. Not Tasmania.

CCCXXXI. Genus *GRAUCALUS*.

Graucalus Cuvier, Le Règne Animal, Vol. I., p. 341, "1817" = Dec. 7th, 1816. Type (by subsequent designation, Gray, 1840, p. 34): *Corvus papuensis* Gmelin.

Coracina Vieillot, Analyse nouv. Ornith., p. 37, April 14th, 1816. Type (by subsequent designation, Cabanis, Mus. Heine, Vol. I., p. 62, 1851): "*Choucari*" = *Corvus papuensis* Gmelin.
Not *Coracinus* Pallas Zoogr., Vol. III., p. 255, 1814.

Corvina Hahn, Vögel aus Asien, Africa, etc., Vol. I., Heft XI., pl. 3, 1822. Error for *Coracina* Vieillot.

Coronis Gloger, in Froriep's Notizen, Vol. XVI., p. 277, March 1827. New name for "*Coracina* Vieillot."
Not *Coronis* Latreille, Encyc. Method., Vol. X., p. 474, 1825.

402. *GRAUCALUS NOVAEHOLLANDIAE*. BLACK-FACED CUCKOO-SHRIKE.

Gould, Vol. II., pl. 55 (pt. xix.), June 1st, 1845. Mathews, Vol. IX., pt. 3, pl. 413, June 20th, 1921.

Turdus novaehollandiae Gmelin, Syst. Nat., Vol. I., pt. II., p. 814, April 20th, 1789: "Nova Hollandia" = Adventure Bay, Tasmania.

Corvus melanops Latham, Index Ornith. Suppl., p. xxiv. (after May 30th), 1801: New South Wales (Sydney).

Graucalus choucari Laugier, Cat. Birds Coll., p. 8, 1836: New South Wales (Sydney).

Graucalus melanotis Gould, Synops. Birds Austr., pt. IV., pl. (56), April 1st, 1838: New South Wales (Sydney).

Graucalus parvirostris Gould, *ib.*: "New South Wales" = Tasmania (?).

Coracina melanops tasmanica Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 100, July 13th, 1911: Tasmania.

Coracina novaehollandiae westralensis Mathews, Nov. Zool., Vol. XVIII., p. 326, Jan. 31st, 1912: Wilson's Inlet, South-west Australia.

Coracina novaehollandiae subpallida Mathews, *ib.*: (Strelly River) North-west Australia.

Coracina novaehollandiae connectens Mathews, *ib.*: Inkerman, Queensland.

Coracina novaehollandiae didimus Mathews, Austral Av. Rec., Vol. I., pt. II., p. 42, April 2nd, 1912: Melville Island, Northern Territory.

DISTRIBUTION. Australia and Tasmania.

403. *GRAUCALUS HYPOLEUCUS*. WHITE-BELLIED CUCKOO-SHRIKE.

Gould, Vol. II., pl. 57 (pt. xxxiii.), Dec. 1st, 1848. Mathews, Vol. IX., pt. 3, pl. 414, June 20th, 1921.

LIST OF BIRDS OF AUSTRALIA.

- Graucalus hypoleucus* Gould, Proc. Zool. Soc. (Lond.), 1848, p. 38, Nov. 14th : Port Essington, Northern Territory.
Coracina hypoleuca stalkerii Mathews, Nov. Zool., Vol. XVIII., p. 327, Jan. 31st, 1912 : Cooktown, North Queensland.
Coracina hypoleuca apsleyi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 42, April 2nd, 1912 : Melville Island, Northern Territory.
Coracina hypoleuca parryi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912 : Parry's Creek, North-west Australia.

DISTRIBUTION. Northern Tropical Australia.

404. GRAUCALUS ROBUSTUS. LITTLE CUCKOO-SHRIKE.

Gould, Vol. II., pl. 56 (pt. xxxii.), Sept. 1st, 1848. Mathews, Vol. IX., pt. 3, pl. 415, June 20th, 1921.

- Lanius robustus* Latham, Index Ornith. Suppl., p. xviii. (after May 30th), 1801 : New South Wales (Sydney).
Corvus melanogaster Latham, *ib.*, p. xxxv. : New South Wales (Sydney).
Graucalus mentalis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 217, Feb. 17th, 1827 : South Coast = South Australia.
Ceblepyris (*Graucalus*) *affinis* Rüppell, Mus. Senckenb., Vol. III., pt. i., p. 38, 1839 : " Vermuthlick, Neu Holland " = New South Wales (Sydney).
Colluricincla concinna Hutton, Cat. Birds New Zeal., p. 15 (Introd. Sept.), 1871 : New Zealand (accidental).
Colluricincla coccinea Giebel, Thes. Ornith., Vol. III., p. 797 (pref. March), 1897 : error for preceding.
Coracina robusta victoriæ Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916 : Victoria.

DISTRIBUTION. Queensland, New South Wales, Victoria, South Australia.

CCCXXXII. Genus *PARAGRAUCALUS*.

Paragraucalus Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 58, Oct. 23rd, 1913. Type (by original designation) : *Ceblepyris lineatus* Swainson.

405. PARAGRAUCALUS LINEATUS. BARRED CUCKOO-SHRIKE.

Gould, Vol. II., pl. 58 (pt. xxiii.), June 1st, 1846. Mathews, Vol. IX., pt. 3, pl. 416, June 20th, 1921.

- Ceblepyris lineatus* Swainson, Zool. Journ., Vol. I., pt. 4, p. 466, Jan. 1825 : " Australia " = Queensland (Moreton Bay).
Graucalus swainsonii Gould, Synops. Birds Austral., pt. iv., pl. (57), April 1st, 1838. New name for *C. lineatus* Swainson.
Paragraucalus lineatus austini Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916 : New South Wales.

DISTRIBUTION. Queensland, New South Wales (south to Lithgow).

CCCXXXIII. Genus *METAGRAUCALUS*.

Metagraucalus Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 59, Oct. 23rd, 1913. Type (by original designation) : *Graucalus tenuirostris* Jardine.

406. METAGRAUCALUS TENUIROSTRIS. CATERPILLAR-CATCHER.

Gould, Vol. II., pl. 60 (pt. xxxiii.), Dec. 1st, 1848. Mathews, Vol. IX., pt. 3, pl. 417, June 20th, 1921.

- Graucalus tenuirostris* Jardine, Edinb. Journ. Nat. Geogr. Sc. (n.s.), Vol. III., p. 211, April 1831 : " New Holland " = New South Wales.
Ceblepyris jardini Rüppell, Mus. Senckenb., Vol. III., pt. i., p. 30, 1839. New name for *G. tenuirostris* Jardine.
Coracina tenuirostris obscura Mathews, Nov. Zool., Vol. XVIII., p. 328, Jan. 31st, 1912 : Cairns, Queensland.
Coracina tenuirostris melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912 : Melville Island, Northern Territory.

DISTRIBUTION. Northern Tropical Australia and down the east coast into Victoria, but only to Napier Broome Bay on the west.

LIST OF BIRDS OF AUSTRALIA.

CCCCXXXIV. Genus *LALAGE*.

Lalage Boie Isis, 1826, Heft X., col. 973 (October). Type (by monotypy): *Turdus orientalis* Gmelin = *Turdus niger* Forster.

Erucivora Swainson, Fauna Bor. Amer. Birds, p. 483, "1831" = February 1832. Type (by monotypy): *T. orientalis* Gmelin = *T. niger* Forster.

407. *LALAGE* TRICOLOR. CATERPILLAR-EATER.

Gould, Vol. II., pl. 63 (pt. xxxiv.), Dec. 1st, 1848. Mathews, Vol. IX., pt. 3, pl. 418, June 20th, 1921.

Ceblepyris tricolor Swainson, Zool. Journ., Vol. I., pt. iv., p. 467, Jan. 1825: "Australia" = New South Wales (Sydney).

Ceblepyris humeralis Gould, Synops. Birds Austr., pt. iv., App., p. 2, April 1st, 1838 = New South Wales (Sydney).

Lalage tricolor indistincta Mathews, Nov. Zool., Vol. XVIII., p. 328, Jan. 31st, 1912: Wyndham, North-west Australia.

Karua leucomela mayi Ashby, South Austr. Ornith., Vol. I., pt. 4, p. 27, Oct. 1st, 1914: Pine Creek, Northern Territory.

DISTRIBUTION. Australia. Not Tasmania (accidental).

CCCCXXXV. Genus *KARUA*.

Karua Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 59, Oct. 23rd, 1913. Type (by original designation): *Campephaga leucomela* Vigors and Horsfield.

408. *KARUA* LEUCOMELA. PIED CATERPILLAR-EATER.

Gould, Vol. II., pl. 61 (pt. xxxi.), June 1st, 1848; Vol. II., pl. 62 (pt. xxxiv.), Dec. 1st, 1848. Mathews, Vol. IX., pt. 3, pl. 418, June 20th, 1921.

Campephaga leucomela Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, Feb. 17th, 1827: Broad Sound, Queensland.

Campephaga (rufiventris) Gray, Genera Birds, Vol. I., p. 283, June 1846: based on Voy. Pôle Sud., pl. 11: Raffles Bay, Northern Territory.

Lalage leucomela yorki Mathews, Nov. Zool., Vol. XVIII., p. 329, Jan. 31st, 1912: Cape York, North Queensland.

Lalage leucomela gouldi Mathews, *ib.*: (Alligator River) Northern Territory.

DISTRIBUTION. Tropical Northern Australia and down the east coast into New South Wales.

FAMILY SPHECOTHERIDÆ.

CCCCXXXVI. Genus *SPHECOTHERES*.

Sphecotheres Vieillot, Analyse nouv. Ornith., p. 42, April 14th, 1816. Type (by monotypy): *S. viridis* Vieillot.

Picnoramphus Rosenberg, Tijdschr. Nederl. Ind., Vol. XXIX., p. 143, 1866. Type (by monotypy): *P. cucullatus* Rosenberg.

409. *SPHECOTHERES* VIEILLIOTI. FIG-BIRD.

Gould, Vol. IV., pl. 15 (pt. xxx.), March 1st, 1848. Mathews, Vol. IX., pt. 4, pl. 419, Oct. 19th, 1921.

Sphecotheres vieilloti Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 215, Feb. 17th, 1827: Keppel Bay, Queensland.

Sphecotheres virescens Jardine and Selby, Illus. Ornith., Vol. II., pl. 79, July 1829: New South Wales. Not *Sphecotheres virescens* Vieillot, Gal. d'Oiseaux, pl. 147, 1823.

Sphecothera grisea Lesson, Traité d'Orn., livr. 5, p. 351 (Dec.), 1830: "Aux Terre Australes" (part only).

Lanius asturinus Lesson, *ib.*

Sphecotheres canicollis Swainson, Anim. in Menag., p. 320, Dec. 31st, 1837: "Australia" = New South Wales.

Sphecotheres maxillaris Gray, Genera Birds, Vol. I., p. 231, 1845, and recent authors, but not *Turdus maxillaris* Latham, Index Ornith., Suppl., p. xliii., 1801. Cf. Austral Av. Rec., Vol. III., pt. 6, p. 139, pl. 6, 1918.

Sphecotheres australis Gould, Birds Austr., pt. xxx. (Vol. IV., pl. 15), March 1st, 1848: Queensland.

Sphecotheres maxillaris boweri Mathews, Austral Av. Rec., Vol. III., pt. 5, p. 63, April 7th, 1916: Cairns, North Queensland.

DISTRIBUTION. Eastern Australia from Cairns, North Queensland, to New South Wales.

LIST OF BIRDS OF AUSTRALIA.

410. SPHECOTHERES FLAVIVENTRIS. YELLOW-BELLIED FIG-BIRD.

Gould, Suppl., pl. 37 (pt. I.), March 15th, 1851. Mathews, Vol. IX., pt. 4, pl. 420, Oct. 19th, 1921.

Sphecotheres flaviventris Gould, Proc. Zool. Soc. (Lond.), 1849, p. 111 (between Jan. and June), 1850 : Cape York, Queensland.

Sphecotheres flaviventris audoni Mathews, Nov. Zool., Vol. XVIII., p. 436, Jan. 31st, 1912 : Cairns, North Queensland.

Sphecotheres flaviventris ashbyi Mathews, *ib.* : Alligator River, Northern Territory.

DISTRIBUTION. North Queensland, Northern Territory.

NOTE.—*Sphecotheres stalkerii* Ingram, Bull. Brit. Orn. Club, Vol. XXI., p. 100, May 30th, 1908 : Mount Elliot, North Queensland, based on two males, has not since been recognised, but may be a plumage change of *S. vieilloti* above.

FAMILY ORTHONYCIDÆ.

CCCXXXVII. Genus ORTHONYX.

Orthonyx Temminck, Manuel d'Orn., 2nd ed., Vol. I., p. LXXXI., Oct. 21st, 1820. Type (by monotypy): founded on *O. temminckii* Ranzani.

411. ORTHONYX TEMMINCKII. SPINE-TAILED LOG-RUNNER.

Gould, Vol. IV., pl. 99 (pt. xxx.), March 1st, 1848. Mathews, Vol. IX., pt. 4, pl. 421, Oct. 19th, 1921.

Orthonyx temminckii Ranzani, Elem. di Zool., Vol. III., pt. III., p. 19, April 3rd, 1822 : "Oceanica" = Hat Hill, New South Wales.

Orthonyx maculatus Stephens in Shaw's Gen. Zool., Vol. XIV., p. 186 (end), 1826 : Same locality.

Orthonyx temminckii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 294, Feb. 17th, 1827 : Same locality.

Orthonyx spinicaudus Temminck et Laugier, Planch. Color. d'Ois., 72^e livr. (Vol. IV., pls. 428, 429), April 25th, 1827 : Same locality.

Orthonyx temminckii chandleri Mathews, Nov. Zool., Vol. XVIII., p. 329, Jan. 31st, 1912 : Richmond River, New South Wales.

DISTRIBUTION. New South Wales, South Queensland.

CCCXXXVIII. Genus MACRORTHONYX.

Macrorthonyx Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 111, Dec. 24th, 1912. Type (by original designation) : *Orthonyx spaldingi* Ramsay.

412. MACRORTHONYX SPALDINGI. BLACK-HEADED LOG-RUNNER.

Gould, Suppl., pl. 53 (pt. v.), Aug. 1st, 1869. Mathews, Vol. IX., pt. 4, pl. 422, Oct. 19th, 1921.

Orthonyx spaldingi Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 386, Oct. 1st : Rockingham Bay, Queensland.

Macrorthonyx spaldingi albiventer Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915 : Atherton, North Queensland.

DISTRIBUTION. North Queensland (Cairns district).

FAMILY CINCLOSOMATIDÆ.

CCCXXXIX. Genus CINCLOSOMA.

Cinclosoma Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 219, Feb. 17th, 1827. Type (by monotypy) : *Turdus punctatus* Latham = Shaw.

413. CINCLOSOMA PUNCTATUM. SPOTTED GROUND-BIRD.

Gould, Vol. IV., pl. 4 (pt. I.), Dec. 1st, 1840. Mathews, Vol. IX., pt. 4, pl. 423, Oct. 19th, 1921.

LIST OF BIRDS OF AUSTRALIA.

Turdus punctatus Shaw, Zool. New Holland, pt. 3, pl. 9, 1795 (pl. dated Sept. 10th, 1794): New South Wales (Sydney).

Turdus punctatus Latham, Index Ornith. Suppl., p. xlv. (after May 30th), 1801: New South Wales (Sydney).

Cinclosoma punctatum neglectum Mathews, Nov. Zool., Vol. XVIII., p. 330, Jan. 31st, 1912: Frankston, Victoria.

Cinclosoma punctatum dovei Mathews, *ib.*: Tasmania.

DISTRIBUTION. Eastern Australia from Moreton Bay, Queensland, to Spencer's Gulf, South Australia and Tasmania.

414. CINCLOSOMA CASTANOTUM. CHESTNUT-BACKED GROUND-BIRD.

Gould, Vol. IV., pl. 5 (pt. i.), Dec. 1st, 1840. Mathews, Vol. IX., pt. 4, pl. 424, Oct. 19th, 1921.

Cinclosoma castanotus Gould, Birds Austr., pt. i. (Vol. IV., pl. 5), Dec. 1st, 1840: Belts of the Murray, South Australia.

Cinclosoma castanotum dundasi Mathews, Nov. Zool., Vol. XVIII., p. 330, Jan. 31st 1912: Lake Dundas, West Australia.

DISTRIBUTION. The Mallee, across Southern Australia from New South Wales and Victoria to West Australia.

CCCXL. Genus *SAMUELA*.

Samuela Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 112, Dec. 24th, 1912. Type (by original designation): *Cinclosoma cinnamomeus* Gould.

415. SAMUELA CINNAMOMEA. CINNAMON GROUND-BIRD.

Gould, Vol. IV., pl. 6 (pt. xxv.), Dec. 1st, 1846; Suppl., pl. 32 (pt. ii.), Sept. 1st, 1855. Mathews, Vol. IX., pt. 5, pls. 425-426, Dec. 15th, 1921.

Cinclosoma cinnamomeus Gould, Proc. Zool. Soc. (Lond.), 1846, p. 68, Oct.: Dépôt (Sturt's), Interior of South Australia = North-western New South Wales.

Cinclosoma castaneothorax Gould, Proc. Zool. Soc. (Lond.), 1848, p. 139, June 1st, 1849: Darling Downs, "N.S.W." *i.e.*, Queensland to-day.

Cinclosoma erythrothorax Sharpe, Ibis, 1881, p. 605, Oct.: emendation of *castaneothorax* only.

Cinclosoma marginatum Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 336 (pref. July 1st), 1883: "North-west Australia" (not Elsey's birds), exact locality unknown. Now designated North-western New South Wales.

Cinclosoma castaneothorax nea Mathews, Nov. Zool., Vol. XVIII., p. 331, Jan. 31st, 1912: Day Dawn, West Australia.

Samuela cinnamomea samueli Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: Gawler Ranges, South Australia.

Samuela cinnamomea todmordeni Mathews, Austral Av. Rec., Vol. V., pts. 2/3, p. 35, Feb. 21st, 1923: Todmorden, Central Australia.

DISTRIBUTION. The interior of Australia, ranging to Darling Downs on the north-east, Day Dawn on the south-west, and Gawler Ranges on the south.

416. SAMUELA ALISTERI. BLACK-BREASTED GROUND-BIRD.

Mathews, Vol. IX., pt. 5, pl. 427, Dec. 15th, 1921.

Cinclosoma alisteri Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 16, Nov. 4th, 1910: (Waddilinia, Nullarbor Plains) West Australia.

Cinclosoma alisteri nullarborensis Campbell, Emu, Vol. XXI., pt. 3, p. 161, pl. xxxii., Jan. 14th, 1922: (Haig and Naretha) Nullarbor Plains, West Australia.

DISTRIBUTION. West Australia (Nullarbor Plains).

CCCXLI. Genus *DRYMODES*.

Drymodes Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, July 1841. Type (by monotypy): *D. brunneopygia* Gould.

Hylodes Gray, List Genera Birds, 2nd ed., p. 30, Sept. 1841 (ex Gould MS.). Type (by original designation): "*H.*" *brunneopygia* Gould.

Not *Hylodes* Fitzinger, Neue Classif. Rept., pp. 38, 64, 1826.

LIST OF BIRDS OF AUSTRALIA.

417. DRYMODES BRUNNEOPYGIA. SCRUB-ROBIN.

Gould, Vol. III., pl. 10 (pt. viii.), Sept. 1st, 1842. Mathews, Vol. IX., pt. 5, pl. 428, Dec. 15th, 1921.

Drymodes brunneopygia Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, July 1841: Belts of the Murray, South Australia.

Drymaeodius pallidus Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 344 (pref. July 1st), 1883: Shark's Bay, West Australia.

Drymodes brunneopygia victoriae Mathews, Nov. Zool., Vol. XVIII., p. 332, Jan. 31st, 1912: Kow Plains, Victoria.

Drymodes brunneopygia intermedia Mathews, Birds Austr., Vol. IX., pt. 5, p. 214, Dec. 15th, 1921: (Venus Bay) South Australia (western).

DISTRIBUTION.—The Mallee of Southern Australia from Victoria to West Australia.

418. DRYMODES SUPERCILIARIS. NORTHERN SCRUB-ROBIN.

Gould, Suppl., pl. 16 (pt. i.), March 15th, 1851; Mathews, Vol. IX., pt. 5, pl. 429, Dec. 15th, 1921.

Drymodes superciliaris Gould, in Jardine's Contr. Ornith., 1850, p. 105: Cape York, Queensland.

Drymodes superciliaris colcloughi Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 97, Sept. 24th, 1914: Roper River, Northern Territory.

DISTRIBUTION.—North Queensland, Northern Territory.

CCCXLII. Genus *PYCNOPTILUS*.

Pycnoptilus Gould, Proc. Zool. Soc. (Lond.), 1850, p. 95, March 14th, 1851. Type (by monotypy): *P. floccosus* Gould.

419. PYCNOPTILUS FLOCCOSUS. PILOT BIRD.

Gould, Suppl., pl. 27 (pt. i.), March 15th, 1851. Mathews, Vol. IX., pt. 5, pl. 428, Dec. 15th, 1921.

Pycnoptilus floccosus Gould, Proc. Zool. Soc. (Lond.), 1850, p. 95, March 14th, 1851: Interior of New South Wales=Blue Mountains.

Pycnoptilus floccosus Gould, Proc. Zool. Soc. (Lond.), 1850, p. 279 (after Jan.), 1852: Same specimen.

Pycnoptilus floccosus sandlandi Mathews, Nov. Zool., Vol. XVIII., p. 331, Jan. 31st, 1912: Sassafras, Victoria.

DISTRIBUTION. New South Wales, Victoria.

CCCXLIIA. Genus *HYLACOLA*.

Hylacola Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843. Type (by original designation): *Acanthiza pyrrhopygia* Vigors and Horsfield.

420. HYLACOLA PYRRHOPYGIA. GROUND WREN.

Gould, Vol. III., pl. 39 (pt. xiii.), Dec. 1st, 1843; Vol. III., pl. 40 (pt. xiii.), Dec. 1st, 1843. Mathews, Vol. IX., pt. 5, pl. 430, Dec. 15th, 1921.

Acanthiza pyrrhopygia Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227, Feb. 17th, 1827: New South Wales (near Sydney).

Hylacola cauta Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843: Western belts of the Murray, South Australia.

Hylacola pyrrhopygia brevicauda Mathews, Nov. Zool., Vol. XVIII., p. 332, Jan. 31st, 1912: (Underbool) Victoria.

Hylacola pyrrhopygia halmaturina Mathews, *ib.*, p. 333: Kangaroo Island, South Australia.

Hylacola pyrrhopygia whitlocki Mathews, *ib.*: (Stirling Ranges) South-west Australia.

Hylacola pyrrhopygia belcheri Mathews, Austral Av. Rec., Vol. I., pt. 8, p. 191, March 20th, 1913: Anglesea, Victoria.

Hylacola pyrrhopygia magna Howe, Emu, Vol. XVIII., pt. i., p. 59, July 1st, 1918: Cobbora, New South Wales.

DISTRIBUTION. Southern Australia, from New South Wales to South-west Australia. Not Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCCXLIII. Genus *PSOPHODES*.

Psophodes Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 328, Feb. 17th, 1827. Type (by monotypy): *P. crepitans* (Latham) = *Corvus olivaceus* Latham.

421. *PSOPHODES OLIVACEUS*. COACHWHIP-BIRD.

Gould, Vol. III., pl. 15 (pt. III.), June 1st, 1841. Mathews, Vol. IX., pt. 6, pl. 431, Feb. 15th, 1922.

Corvus olivaceus Latham, Index Ornith. Suppl., p. xxvi. (after May 30th), 1801: New South Wales (Sydney).

Muscicapa crepitans Latham, *ib.*, p. li.: New South Wales (Sydney).

Pica gularis Wagler, Syst. Avium *Pica*, sp. 13 (before Oct.), 1827: New South Wales (Sydney).

Dasyornis abeillei Lesson, Echo du Monde Savant, 11^e year, No. 49, June 23rd, 1844: New South Wales (Sydney).

Cf. Menegaux, Art. d'Ornith. Lesson, p. 117, 1913.

Psophodes crepitans lateralis North, Rec. Austr. Mus., Vol. III., p. 13, Jan. 7th, 1897: Boar Pocket, North Queensland.

Psophodes olivaceus scrymgeouri Mathews, Nov. Zool., Vol. XVIII., p. 333, Jan. 31st, 1912: (Gippsland) Victoria.

Psophodes olivaceus sublateralis Mathews, *ib.*, p. 334: Tweed River, (North) New South Wales.

Psophodes olivaceus magnirostris Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 92, Sept. 18th, 1912: Rockhampton, Queensland.

DISTRIBUTION. Eastern Australia from Queensland to Victoria.

422. *PSOPHODES NIGROGULARIS*. BLACK-THROATED COACHWHIP-BIRD.

Gould, Vol. III., pl. 16 (pt. xv.), July 1st, 1844. Mathews, Vol. IX., pt. 6, pl. 431. Feb. 15th, 1922.

Psophodes nigrogularis Gould, Birds Austr., pt. xv. (Vol. III., pl. 16), July 1st, 1844; Proc. Zool. Soc. (Lond.), 1844, p. 5, July: Western Australia = Perth district.

Psophodes nigrogularis pallida Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: South-west Australia = Cape Mentelle.

DISTRIBUTION. South-west Australia. Extinct (?).

CCCXLIV. Genus *POMATOSTOMUS*.

Pomatostomus Cabanis, Mus. Heine, Vol. I., p. 83 (after Oct. 23rd), 1851. Type (by subsequent designation, Gray, 1855, p. 45): *Pomatorhinus temporalis* Vigors and Horsfield.

423. *POMATOSTOMUS TEMPORALIS*. BABBLER.

Gould, Vol. IV., pl. 20 (pt. xvi.), Sept. 1st, 1844; Vol. IV., pl. 21 (pt. xxx.), March 1st, 1848. Mathews, Vol. IX., pt. 6, pl. 432, Feb. 15th, 1922.

Pomatorhinus temporalis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, Feb. 17th, 1827: Shoalwater Bay, Queensland.

Pomatorhinus trivirgatus Temminck et Laugier, Planch. Color. d'Ois., 75^e livr. (Vol. IV., pl. 443), Jan. 5th, 1828: Blue Mountains, New South Wales.

Pomatorhinus rubeculus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 144, March 1840: North-west Coast Australia = Port Essington, Northern Territory.

Pomatorhinus frivolus Sharpe, Hist. Coll. Nat. Hist. Brit. Mus., Vol. II., p. 137, 1906.

Not *Turdus frivolus* Latham, Index Ornith. Suppl., p. xlvi., 1801. Cf. Austral Av. Rec., Vol. V., pt. 1, p. 28, pl. (4), July 17th, 1922.

Pomatorhinus temporalis tregellasi Mathews, Nov. Zool., Vol. XVIII., p. 334, Jan. 31st, 1912: Frankston, Victoria.

Pomatorhinus temporalis cornwalli Mathews, *ib.*, p. 335: Cairns, North Queensland.

Pomatorhinus temporalis nigrescens Mathews, *ib.*: Strelley River, North-west Australia.

Pomatorhinus temporalis intermedius Matthews, *ib.*: Alexandra, Northern Territory.

Pomatorhinus temporalis bamba Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912: Melville Island, Northern Territory.

DISTRIBUTION. Australia, except South and South-west Australia. Not Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCCXLV. Genus *MORGANORNIS*.

Morganornis Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 112, Dec. 24th, 1912. Type (by original designation): *Pomatorhinus superciliosus* Vigors and Horsfield.

424. *MORGANORNIS SUPERCILIOSUS*. WHITE-BROWED BABBLER.

Gould, Vol. IV., pl. 22 (pt. xvi.), Sept. 1st, 1844. Mathews, Vol. IX., pt. 6, pl. 433, Feb. 15th, 1922.

Pomatorhinus superciliosus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 330, Feb. 17th, 1827: South Australia.

Pomatorhinus superciliosus ashbyi Mathews, Bull. Brit. Orn. Club, Vol. XXVIII., p. 87, April 27th, 1911: Broome Hill, South-west Australia.

Pomatorhinus superciliosus gilgandra Mathews, Nov. Zool., Vol. XVIII., p. 336, Jan. 31st, 1912: (Gilgandra) Northern New South Wales.

Pomatorhinus superciliosus gwendolenæ Mathews, *ib.*: Carnarvon, West Australia.

DISTRIBUTION. Southern Australia to Northern New South Wales on the east, and Carnarvon district in the west. Not Tasmania.

425. *MORGANORNIS RUFICEPS*. CHESNUT-CROWNED BABBLER.

Gould, Suppl., pl. 38 (pt. ii.), Sept. 1st, 1835. Mathews, Vol. IX., pt. 6, pl. 433, Feb. 15th, 1922.

Pomatorhinus ruficeps Hartlaub, Rev. Mag. de Zool., 1852 (July No.), p. 316, published August: "Adelaide, South Australia" = Broken Hill, New South Wales.

Pomatorhinus pileatus Blyth, Journ. As. Soc., Bengal, Vol. XXXII., p. 453, 1863, 1864, ex Melbourne Inst. = Broken Hill, New South Wales.

Pomatostomus ruficeps bebbi Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: South Queensland.

Pomatostomus ruficeps parsoni Mathews, Bull. Brit. Orn. Club, Vol. XXXVIII., p. 48, March 4th, 1918: Pungonda, South Australia.

DISTRIBUTION. Adjoining portions of interior of South Queensland, New South Wales, Victoria and South Australia.

CCCXLVI. Genus *CALAMANTHUS*.

Calamanthus Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1st, 1838. Type (by original designation): *Anthus fuliginosus* Vigors and Horsfield.

Praticola Swainson, Classif. Birds, Vol. II., p. 243, July 1st, 1837. Type (by monotypy): *P. anthoides* Swainson = *Anthus fuliginosus* Vigors and Horsfield.

Not *Praticola* Kaup, Skizz. Entwick. Gesch. Nat. Syst., p. 114, 1829.

Eremianthus Mathews, Birds Austr., Vol. IX., pt. 6, p. 295, Feb. 15th, 1922. Type (by original designation): *Calamanthus campestris wayensis* Mathews.

426. *CALAMANTHUS FULIGINOSUS*. STRIATED FIELD-WREN.

Gould, Vol. III., pl. 70 (pt. xvi.), Sept. 1st, 1844. Mathews, Vol. IX., pt. 6, pl. 434, Feb. 15th, 1922.

Anthus fuliginosus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, Feb. 17th, 1827: Tasmania (North).

Praticola anthoides Swainson, Anim. in Menag., p. 343, Dec. 31st, 1837; Classif. Birds, Vol. II., p. 244, July 1837, *nom. nud.*: Tasmania (North-west).

Calamanthus albiloris North, Vict. Naturalist, Vol. XIX., p. 106, Nov. 6th, 1902: Victoria.

Calamanthus diemenensis North, Austr. Mus. Spec. Cat., No. 1, Vol. I., pt. iv., p. 354, July 11th, 1904: Waratah, North-west Tasmania.

Calamanthus fuliginosus obscurior Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 35, Feb. 21st, 1923: New South Wales.

DISTRIBUTION. Tasmania, Victoria, New South Wales.

LIST OF BIRDS OF AUSTRALIA.

427. CALAMANTHUS MONTANELLUS. ROCK FIELD-WREN.

Mathews, Vol. IX., pt. 6, pl. 434, Feb. 15th, 1922.

Calamanthus montanellus Milligan, Emu, Vol. II., p. 200, April 1st, 1903 : Stirling Ranges, South-west Australia.

Calamanthus fuliginosus carteri Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31st, 1912 : Broome Hill, South-west Australia.

Calamanthus campestris hartogi Carter, Bull. Brit. Orn. Club, Vol. XXXVII., p. 6, Oct. 24th, 1916 : Dirk Hartog Island, West Australia.

Calamanthus montanellus ashbyi Mathews, Birds Austr., Vol. IX., pt. 6, p. 287, Feb. 15th, 1922 : Wongan Hills, West Australia.

Calamanthus montanellus leakei Mathews, Bull. Brit. Orn. Club, Vol. XLIII., p. 13, Oct. 27th, 1922 : Woolundra, Gold Fields Railway, Interior of South-west Australia.

DISTRIBUTION. West Australia.

428. CALAMANTHUS CAMPESTRIS. FIELD-WREN.

Gould, Vol. III., pl. 71 (pt. xvi.), Sept. 1st, 1844. Mathews, Vol. IX., pt. 6, pl. 435, Feb. 15th, 1922.

Praticola campestris Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841 : Near Adelaide, South Australia.

Calamanthusi sabellinus North, Rep. Horn Sc. Exped. Cent. Austr., Vol. II., Zool., p. 85, Feb. 1896 : Central Australia.

Calamanthus howei Mathews, Bull. Brit. Orn. Club, Vol. XXV., p. 24, Nov. 30th, 1909 : Kow Plains, Victoria.

Calamanthus campestris ethelæ Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31st, 1912 : Eyre's Peninsula, South Australia.

Calamanthus campestris macgillivrayi Mathews, Austral Av. Rec., Vol. II., pt. i., p. 8, Aug. 2nd, 1913 : Broken Hill, New South Wales.

DISTRIBUTION. Interior of Southern Australia from Broken Hill, New South Wales, to Eyre's Peninsula, South Australia.

429. CALAMANTHUS RUBIGINOSUS. RUSTY FIELD-WREN.

Mathews, Vol. IX., pt. 6, pl. 435, Feb. 15th, 1922.

Calamanthus rubiginosis Campbell, Vict. Naturalist, Vol. XVI., p. 3, May 4th, 1899 : near Point Cloates, West Australia.

Calamanthus campestris dorrie Mathews, Nov. Zool., Vol. XVIII., p. 337, Jan. 31st, 1912 : Dorrie Island, West Australia.

Calamanthus campestris wayensis Mathews, *ib.*, p. 338 : Lake Way, Mid-Westralia.

Calamanthus campestris peroni Mathews, Ibis, 1917, p. 586, Oct. 10th : Peron Peninsula, West Australia.

DISTRIBUTION. West Australia.

CCCXLVII. Genus *CINCLORHAMPHUS*.

Cincloramphus Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1st, 1838. Type (by original designation) : *Megalurus cruralis* Vigors and Horsfield.

Ptenædus Cabanis, Mus. Heine, Vol. I., p. 39 (after Oct. 23rd), 1851. New name for *Cincloramphus* Gould. Type as above : *Megalurus cruralis* Vigors and Horsfield.

430. CINCLORHAMPHUS CRURALIS. BROWN SONG-LARK.

Gould, Vol. III., pl. 74 (pt. xix.), June 1st, 1845 ; Vol. III., pl. 75 (pt. xxviii.), Sept. 12th, 1847. Mathews, Vol. IX., pt. 6, pl. 436, Feb. 15th, 1922.

Megalurus cruralis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 228, Feb. 17th, 1827 : New South Wales (near Sydney).

Cincloramphus catatoris Gould, Proc. Zool. Soc. (Lond.), 1842, p. 135, Feb. 1843 : South Australia=Port Phillip, Victoria.

Cincloramphus cantillans Gould, Birds Austr., p. xxviii. (Vol. III., pl. 75), Sept. 1st, 1847 : emendation of preceding name only.

Cincloramphus cruralis cielandi Mathews, Nov. Zool., Vol. XVIII., p. 338, Jan. 31st, 1912 : Perth, West Australia.

Cincloramphus cruralis rogersi Mathews, *ib.* : Derby, North-west Australia.

DISTRIBUTION. Australia. Not Tasmania.

LIST OF BIRDS OF AUSTRALIA.

CCCXLVIII. Genus *MACLENNANIA*.

Macleennania Mathews, Austral Av. Rec., Vol. III., pt. 5, p. 127, Dec. 28th, 1917. Type (by original designation): *Cincloramphus mathewsi* Iredale.

431. MACLENNANIA MATHEWSI. RUFOUS SONG-LARK.

Gould, Vol. III., pl. 76 (pt. xxvi.), March 1st, 1847. Mathews, Vol. IX., pt. 7, pl. 437, April 4th, 1922.

Anthus rufescens Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, Feb. 17th, 1827: "New South Wales."

Not *Anthus rufescens* Temminck, Manuel d'Ornith., 2nd ed., Vol. I., p. 267, 1820.

Cincloramphus rufescens mathewsi Iredale, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26th, 1911: Yalgoo, West Australia.

Cincloramphus mathewsi alisteri Mathews, Nov. Zool., Vol. XVIII., p. 339, Jan. 31st, 1912: East Murchison, West Australia.

Cincloramphus mathewsi subalisteri Mathews, *ib.*: Parry's Creek, North-west Australia.

Cincloramphus mathewsi horsfieldi Mathews, *ib.*: Alexandra, Northern Territory.

Cincloramphus mathewsi vigorsi Mathews, *ib.* New name for *Anthus rufescens* Vigors and Horsfield: New South Wales.

Poodytes gramineus normani (error) Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 97, Sept. 24th, 1914: Normanton, North Queensland.

Ptenædus mathewsi normani Mathews, Austral Av. Rec., Vol. II., pl. 7, p. 133, Jan. 28th, 1915; correction of preceding: Normanton, North Queensland.

DISTRIBUTION. Australia. Not Tasmania.

FAMILY TURDIDAE.

CCCXLIX. Genus *OREOCINCLA*.

Oreocincla Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1st, 1838. Type (by original designation and monotypy): *Turdus varius* Horsfield, not Vieillot=*Turdus horsfieldi* Bonaparte.

432. OREOCINCLA LUNULATA. GROUND THRUSH.

Gould, Vol. IV., pl. 7 (pt. xxx.), March 1st, 1848. Mathews, Vol. IX., pt. 7, pl. 438, April 4th, 1922.

Turdus lunulatus Latham, Index Ornith. Suppl., p. xlii. (after May 30th), 1801: New South Wales (Sydney).

Oreocincla novæhollandiæ Gray, Ann. Mag. Nat. Hist., Vol. IX., p. 192, March 1843, in synonymy of *T. lunulatus* Latham; Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1st, 1838, *nom. nud.*

Oreocincla macrorhyncha Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1st, 1838: "New Zealand or Van Diemen's Land"=Tasmania.

Turdus australasianus Cotton, Tasm. Journ. Nat. Sc., Vol. III., p. 363, 1848, *nude name*.

Oreocincla heinei Cabanis, Mus. Heine., Vol. I., p. 6 (after Oct. 23rd), 1851. "Japan" error=Queensland.

Oreocincla iodura Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. IX., p. 401, May 1st, 1872: Queensland.

Geocichla cuneata De Vis, Proc. Roy. Soc. Queensl., Vol. VI., pt. v., p. 242 (1889), 1890: Herberton, North Queensland.

Geocichla lunulata subsp. *halmaturina*, A. G. Campbell, Emu, Vol. V., p. 140, Jan. 1st, 1906: Kangaroo Island.

Turdus lunulatus dendyi Mathews, Nov. Zool., Vol. XVIII., p. 340, Jan. 31st, 1912: (Sassafras) Victoria.

DISTRIBUTION. Eastern Australia from North Queensland to South Australia, Tasmania, Kangaroo Island.

CCCL. Genus *EPTHIANURA*.

Epthianura Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1st, 1838. Type (by original designation): *Acanthiza albifrons* Jardine and Selby.

Cinura Brehm, Isis, 1845, Heft 5, col. 358, May. Type (by monotypy): *Cinura torquata* Brehm=*Acanthiza albifrons* Jardine and Selby.

433. EPTHIANURA ALBIFRONS. WHITE-FRONTED CHAT.

Gould, Vol. III., pl. 64 (pt. vi.), March 1st, 1842. Mathews, Vol. IX., pt. 7, pl. 439, April 4th, 1922.

LIST OF BIRDS OF AUSTRALIA.

- Acanthiza albifrons* Jardine and Selby, Illus. Ornith., Vol. II., pl. 56, Nov. 1828 : New South Wales.
Fluvicola leucocephala Lesson, Echo du Monde Savant, 11th year, No. 12, col. 275, Aug. 11th, 1844 : Loc. unknown = New South Wales. Cf. Menegaux, Art. d'Ornith., Lesson, p. 201, 1913.
Cinura torquata Brehm, Isis, 1845, Heft. 5, col. 358, May : New South Wales.
Epthianura albifrons tasmanica Mathews, Nov. Zool., Vol. XVIII., p. 340, Jan. 31st, 1912 : Tasmania.
Epthianura albifrons westralensis Mathews, *ib.*, p. 341 : Wilson's Inlet, South-west Australia.
 DISTRIBUTION. Southern Australia, from New South Wales to South-west Australia and Tasmania.

CCCLI. Genus *PAREPETHIANURA*.

Parepthianura Mathews, Emu, Vol. XII., pt. 3, p. 205, Jan. 1st, 1913. Type (by monotypy) : *Epthianura tricolor* Gould.

434. *PAREPETHIANURA TRICOLOR*. TRICOLOURED CHAT.

Gould, Vol. III., pl. 66 (pt. vii.), June 1st, 1842. Mathews, Vol. IX., pt. 7, pl. 439, April 4th, 1922.

- Epthianura tricolor* Gould, Proc. Zool. Soc. (Lond.), 1840, p. 159, July 1841 : South Australia.
Epthianura tricolor assimilis Mathews, Nov. Zool., Vol. XVIII., p. 341, Jan. 31st, 1912 : Lake Way, West Australia.
Epthianura tricolor distincta Mathews, *ib.* : Alexandra, Northern Territory.

DISTRIBUTION. Australia generally, but mainly an interior bird, migratory on the coastal North-west districts.

CCCLII. Genus *AUREPETHIANURA*.

- Aurepthianura* Mathews, Emu, Vol. XII., pt. 3, p. 205, Jan. 1st, 1913. Type (by subsequent designation) : Mathews, List Birds Austr., p. 207, 1913 : *Epthianura aurifrons* Gould.
Keartlandia Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 78, July 21st, 1917. Type (by original designation) : *Acanthiza flaviventris* Ashby = *Epthianura aurifrons* Gould.

435. *AUREPETHIANURA AURIFRONS*. ORANGE-FRONTED CHAT.

Gould, Vol. III., pl. 65 (pt. vii.), June 1st, 1842. Mathews, Vol. IX., pt. 7, pl. 440, April 4th, 1922.

- Epthianura aurifrons* Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1st, 1838 : Interior New South Wales.
Acanthiza (Geobasileus) flaviventris Ashby, Emu, Vol. IX., pt. 3, p. 137, Jan. 1st, 1910 : Lake Frome, South Australia.
Epthianura aurifrons flavescens Mathews, Nov. Zool., Vol. XVIII., p. 341, Jan. 31st, 1912 : Lake Way, West Australia.
Epthianura aurifrons obsoleta Mathews, *ib.* : Alexandra, Northern Territory.
Geobasileus ashbyi Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916. New name for *Acanthiza flaviventris* Ashby.

DISTRIBUTION. Interior of Australia generally.

CCCLIII. Genus *LEACHENA*.

- Leachena* Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916. Type (by original designation) : *Epthianura crocea* Castelnau and Ramsay.

436. *LEACHENA CROCEA*. YELLOW-BREASTED CHAT.

Gould, Birds New Guinea, Vol. III., pl. 14 (pt. xxiv.), 1888. Mathews, Vol. IX., pt. 7, pl. 440, April 4th, 1922.

- Epthianura crocea* Castelnau and Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 380, March 1877 : Norman River, Queensland.
Epthianura crocea tunneyi Mathews, Nov. Zool., Vol. XVIII., p. 342, Jan. 31st, 1912 : Arnhem Land = Alligator River, Northern Territory.
Leachena crocea boweri Mathews, Austral Av. Rec., Vol. V., pt. 1, p. 8, July 17th, 1922 : Fitzroy River, North-west Australia.

DISTRIBUTION. Interior of Northern Australia from Normanton ; Queensland to the Fitzroy River, North-west Australia.

LIST OF BIRDS OF AUSTRALIA.

CCCLIV. Genus *ASHBYIA*.

Ashbyia North, Agric. Gazette, N.S.W., Vol. XXII., pt. 3, p. 211, March 2nd, 1911: Type (by original designation): *Ephthianura lovensis* Ashby.

437. *ASHBYIA LOVENSIS*. DESERT CHAT.

Mathews, Vol. IX., pt. 7, pl. 441, April 4th, 1922.

Ephthianura lovensis Ashby, Emu, Vol. X., pt. 4, p. 251, Jan. 21st, 1911: Leigh's Creek, South Australia.

Ashbyia lovei North, Agric. Gazette N.S.W., Vol. XXII., pt. 3, p. 211, March 2nd, 1911. Emendation of specific name only.

Ashbyia lovensis whitei Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Mary's Well, 12 miles east of Todmorden Camp, Central Australia.

DISTRIBUTION. Interior of South Australia.

FAMILY SYLVIIDÆ.

CCCLV. Genus *CONOPODERAS*.

Conopoderas Billberg, Synops. Faunæ Scand., Vol. I., pt. II., Tab. A., 1828 (cf. Austral Av. Rec., Vol. II., pts. 2-3, p. 38, 1913). Type (by monotypy): *Turdus longirostris* Gmelin = *Sitta caffra* Sparrman.

Tatare Lesson, Traité d'Orn., livr. 4, p. 317, Sept. 25th, 1830. Type (by tautonymy): *Tatare otantensis* Lesson = *Sitta caffra* Sparrman.

438. *CONOPODERAS AUSTRALIS*. REED-WARBLER.

Gould, Vol. III., pl. 37 (pt. xxvii.), June 1st, 1847; Vol. III., pl. 38 (pt. xxiv.), Sept. 1st, 1846. Mathews, Vol. IX., pt. 7, pl. 442, April 4th, 1922.

Calamoherpe australis Gould, in Lewin's Nat. Hist. Birds N.S.W. (ed. Eyton). Index to synonyms to plate 18. Reed-Warbler, 1838: Parramatta, New South Wales.

Calamoherpe longirostris Gould, Proc. Zool. Soc. (Lond.), 1845, p. 20, April: King George's Sound, West Australia. Not *Turdus longirostris* Gmelin, Syst. Nat., Vol. I., p. 823, 1789, which = *Sitta caffra* Sparrman, the type of the genus.

Acrocephalus gouldi Dubois, Synops. Avium, Vol. I., fasc. vi., p. 369, 1901. New name for *C. longirostris* Gould.

Acrocephalus australis mellori Mathews, Nov. Zool., Vol. XVIII., p. 342, Jan. 31st, 1912: Mannam, South Australia.

Acrocephalus australis carteræ Mathews, *ib.*, p. 343: Derby, North-west Australia.

Acrocephalus australis melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 77, June 28th, 1912: Melville Island, Northern Territory.

Acrocephalus australis inexpectatus Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 92, Sept. 18th, 1912: New South Wales.

Not *A. inexpectatus* Berezowski and Bianchi, Ann. Mus. Zool., St. Petersb., Vol. V., p. 210, 1900.

DISTRIBUTION. Australia and Tasmania.

CCCLVI. Genus *CISTICOLA*.

Cisticola Kaup, Skizz. Entwickl. Gesch. Nat. Syst., p. 119 (pref. April), 1829. Type (by tautonymy): *Sylvia cisticola* Temminck.

Cysticola Lesson, Traité d'Orn., livr. 6°, p. 415, March 1st, 1831. Type (by tautonymy): *Sylvia cisticola* Temminck.

439. *CISTICOLA EXILIS*. GRASS-WARBLER.

Gould, Vol. III., pl. 42 (pt. xxiv.), Sept. 1st, 1846; Vol. III., pl. 43 (pt. xxvii.), June 1st, 1847; Vol. III., pl. 44 (pt. xxvi.), March 1st, 1847; Vol. III., pl. 45 (pt. xxvi.), March 1st, 1847. Mathews, Vol. IX., pt. 8, pl. 443, May 22nd, 1922.

Malurus exilis Vigers and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 223, Feb. 17th, 1827: New South Wales (near Sydney).

Cysticola ruficeps Gould, Synops. Birds Austr., pt. iv., App., p. 4, April 1st, 1838: New South Wales (Liverpool Plains).

Not *Malurus ruficeps* Cretzschmer in Rüppell's Atlas, p. 54, pl. 36a, 1826, which is a *Cisticola*.

Cysticola lineocapilla Gould, Proc. Zool. Soc. (Lond.), 1847, p. 1, March 29th: Port Essington, Northern Territory.

Cysticola isura Gould, Birds Austr., pt. xxvi. (Vol. III., pl. 44), March 1st, 1847: New South Wales (Liverpool Plains).

LIST OF BIRDS OF AUSTRALIA.

- Cisticola exilis mixta* Mathews, Nov. Zool., Vol. XVIII., p. 343, Jan. 31st, 1912: (Bartle Frere) Queensland.
Cisticola exilis alexandræ Mathews, *ib.*: Alexandra, Northern Territory.
Cisticola exilis melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912: Melville Island, Northern Territory.
Cisticola exilis parryi Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 77, June 28th, 1912: Parry's Creek, North-west Australia.
Cisticola exilis tormenti Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 77, June 28th, 1912: Point Torment, North-west Australia.
Cisticola exilis normani Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 98, Sept. 24th, 1914: Norman River, Queensland.
Cisticola exilis diminuta Mathews, Birds Austr., Vol. IX., pt. 8, p. 373, May 22nd, 1912: Cape York, North Queensland.
Cisticola exilis exaggerata Mathews, *ib.*: South Victoria.

DISTRIBUTION. Australia and Tasmania (?), but not South-west Australia.

CCCLVII. Genus *POODYTES*.

Poodytes Cabanis, Mus. Heine, Vol. I., p. 42 (after Oct. 23rd), 1851. Type (by monotypy): *Sphenæacus gramineus* Gould.

440. POODYTES GRAMINEUS. GRASS-BIRD.

Gould, Vol. III., pl. 36 (pt. XIX.), June 1st, 1845. Mathews, Vol. IX., pt. 8, pl. 444, May 22nd, 1922.

- Sphenæacus gramineus* Gould, Proc. Zool. Soc. (Lond.), 1845, p. 19, April: Tasmania.
Megalurus striatus Milligan, Emu, Vol. II., pt. 4, p. 201, April 1st, 1903: Lake Yanchep, West Australia.
 Not *Megalurus* (?) *striatus* Jerdon, Madras Journ. Lit. Science, No. 30, p. 169, April 1844.
Megalurus gramineus goulburni Mathews, Nov. Zool., Vol. XVIII., p. 344, Jan. 31st, 1912: Goulburn, New South Wales.
Megalurus gramineus wilsoni Mathews, *ib.*: (Western Port) Victoria.
Megalurus gramineus dubius Mathews, *ib.*: Mannam, South Australia.
Megalurus gramineus thomasi Mathews, *ib.*: Lake Muir, West Australia.
Megalurus gramineus halmaturinus Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912: Kangaroo Island, South Australia.
Megalurus flindersi Mellor and White, Emu, Vol. XII., pt. 2, p. 164, Jan. 1913; White and Mellor, *ib.*, p. 162, *nom. nov.*: Flinders Island, Bass Strait.
Poodytes gramineus milligani Mathews, Austral Av. Rec., Vol. IV., pt. 6, p. 137, Aug. 1st, 1921. New name for *Megalurus striatus* Milligan.

DISTRIBUTION. Extra-tropical Southern Australia and Tasmania.

CCCLVIII. Genus *DULCIORNIS*.

Dulciornis Mathews, Austral Av. Rec., Vol. I., p. 5, p. 112, Dec. 24th, 1912. Type (by original designation): *Megalurus alisteri* Mathews.

441. DULCIORNIS ALISTERI. TAWNY GRASS-BIRD.

Gould, Vol. III., pl. 35 (pt. XXVI.), March 1st, 1847. Mathews, Vol. IX., pt. 8, pl. 445, May 22nd, 1922.

- Megalurus alisteri alisteri* Mathews, Nov. Zool., Vol. XVIII., p. 345, Jan. 31st, 1912: Napier Broome Bay, North-west Australia.
Megalurus alisteri dulciei Mathews, *ib.*: Cooktown, North Queensland.
Megalurus alisteri oweni Mathews, *ib.*: New South Wales.
Megalurus alisteri melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 92, Sept. 18th, 1912: Melville Island, Northern Territory.
Dulciornis alisteri mayi Ashby, South Austr. Ornithologist, Vol. I., pt. 4, p. 27, Oct. 1st, 1914: Pine Creek, Northern Territory.
Megalurus galactotes Vigors and Horsfield, and most recent writers.
 Not *Malurus galactotes* Temminck et Laugier, Planch. Color. d'Ois., livr. 11, pl. 65. June 1821.

DISTRIBUTION. Tropical Northern Australia.

LIST OF BIRDS OF AUSTRALIA.

CCCLIX. Genus *EREMIORNIS*.

Eremiornis North, Vict. Naturalist, Vol. XVII., No. 4, p. 78, Aug. 9th, 1900. Type (by monotypy): *Eremiornis carteri* North.

442. *EREMIORNIS CARTERI*. SPINIFEX BIRD.

Mathews, Vol. IX., pt. 8, pl. 446, May 22nd, 1922.

Eremiornis carteri North, Vict. Naturalist, Vol. XVII., No. 4, p. 79, Aug. 9th, 1900: North-west Cape, (Mid) West Australia.

Eremiornis carteri assimilis Montague, Austral Av. Rec., Vol. I., pt. 8, p. 181, March 20th, 1913: Hermite Island, Monte Bello Group, Mid-west Australia.

Eremiornis carteri rogersi Mathews, Austral Av. Rec., Vol. I., pt. 8, p. 192, March 20th, 1913: Hall's Creek, Kimberley Gold Fields, North-west Australia.

DISTRIBUTION. Mid- and North-west Australia; Monte Bello Island and Barrow Island.

CCCLX. Genus *ORIGMELLA*.

Origmella Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29th, 1913. Type (by original designation): *Sylvia solitaria* Lewin.

Origma Gould, Synops. Birds Austr., pt. iv., App., p. 3, April 1st, 1838. Type (by original designation): *Sylvia solitaria* Lewin.

Spelt *Orygma* Des Murs in Chenu's Encycl. de Hist. Nat., Vol. IV., p. 39, 1854.

Not *Orygma* Meigen, Syst. Besch. Zweifl. Insekt, Vol. VI., p. 6, 1830.

443. *ORIGMELLA SOLITARIA*. ROCK-WARBLER.

Gould, Vol. III., pl. 69 (pt. xxiii.), June 1st, 1846. Mathews, Vol. IX., pt. 8, pl. 446, May 22nd, 1922.

Sylvia solitaria Lewin, Birds New Holland, pl. xvi., 1808 (Sept. ?): (near Parramatta) New South Wales.

Origma solitaria pallida Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 60, April 7th, 1916: Blue Mountains, New South Wales.

Origma rubricata Gould and recent authors.

Not *Sylvia rubricata* Latham, Index Ornith. Suppl., p. lv., 1801.

DISTRIBUTION. New South Wales.

CCCLXI. Genus *CHTHONICOLA*.

Chthonicola Gould, Proc. Zool. Soc. (Lond.), 1847, p. 31, April 27th. Type (by original designation): *Anthus minimus* Vigors and Horsfield=*Sylvia sagittata* Latham.

444. *CHTHONICOLA SAGITTATA*. LITTLE FIELD-WREN.

Gould, Vol. III., pl. 72 (pt. xxvii.), June 1st, 1847. Mathews, Vol. IX., pt. 8, pl. 446, May 22nd, 1922.

Sylvia sagittata Latham, Index Ornith. Suppl., p. liv. (after May 30th), 1801: New South Wales (Sydney).

Sylvia nitida Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XI., p. 197, June 21st, 1917, ex Temminck MS.: New South Wales (Sydney).

Sylvia pyrrophys Vieillot, *ib.*, p. 219: New South Wales (Sydney).

Anthus minimus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 230, Feb. 17th, 1827: New South Wales (Sydney).

Calamanthus strigatus Gray, Genera Birds, Vol. I., p. 164, Aug. 1848, ex Lath. MS. New name for preceding.

Chthonicola sagittata inexpectata Mathews, Nov. Zool., Vol. XVIII., p. 346, Jan. 31st, 1912: (Mitcham) Victoria.

Chthonicola sagittata queenslandica Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 119, Dec. 24th, 1912: (Tambo) Queensland.

DISTRIBUTION. Eastern Australia from South Queensland to Victoria. South Australia (?).

CCCLXII. Genus *ACANTHIZA*.

Acanthiza Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 224, Feb. 17th, 1827. Type (by original designation): *Motacilla pusilla* White.

Subacanthiza Mathews, Birds Austr., Vol. IX., pt. 9, p. 449, Aug. 3rd, 1922. Type (by monotypy): *Acanthiza lineata* Gould.

LIST OF BIRDS OF AUSTRALIA.

445. ACANTHIZA PUSILLA. BROWN TIT.

Gould, Vol. III., pl. 53 (pt. xxviii.), Sept. 1st, 1847 (*pusilla*); Vol. III., pl. 54 (pt. xvii.), Dec. 1st, 1844 (*diemenensis*); Vol. III., pl. 55 (pt. xvii.), Dec. 1st, 1844 (*ewingi*); Vol. III., pl. 57 (pt. xxvi.), March 1st, 1847 (*apicalis*); Vol. III., pl. 58 (pt. xxviii.), Sept. 1st, 1847 (*pyrrhopygia*); Mathews, Vol. IX., pt. 8, pls. 447 and 448, May 22nd, 1912; pt. 9, pl. 451, Aug. 3rd, 1922.

Motacilla pusilla White, Journ. Voy. New South Wales, p. 257 and plate (before Aug.), 1790: Sydney, New South Wales.

Malurus maculatus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XX., p. 215, May 30th, 1818: "Nouvelle Hollande" = New South Wales (Sydney).

Saxicola macularia Quoy et Gaimard, Voy. de l'Astrol., Zool., Vol. I., p. 199 (pref. June 29th), 1830: Western Port, Victoria.

Acanthiza diemenensis Gould, Synops. Birds Austr., pt. iv., pl. (59), April 1st, 1838: Tasmania.

Acanthiza ewingii Gould, Birds Austr., pt. xvii. (Vol. III., pl. 55), Dec. 1st, 1844: Tasmania.

Acanthiza apicalis Gould, Birds Austr., pt. xxvi. (Vol. III., pl. 57), March 1st, 1847: Swan River, West Australia.

Acanthiza pyrrhopygia Gould, Birds Austr., pt. xxviii. (Vol. III., pl. 58), Sept. 1st, 1847: Belts of the Murray, South Australia.

Not *Acanthiza pyrrhopygia* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 227, 1827.

Acanthiza magnirostris A. J. Campbell, Emu, Vol. II., pt. 4, p. 202, April 1st, 1903: King Island, Bass Straits.
Not *Acanthiza magnirostra* Gould, Synops. Birds Austr., pt. iv., pl. (60), 1838.

Acanthiza rufifrons A. J. Campbell, Emu, Vol. II., pt. 4, p. 203, April 1st, 1903: King Island, Bass Straits.

Acanthiza zietzi North, Austr. Mus. Spec. Cat. No. 1, Vol. I., pt. iv., p. 271, July 11th, 1904: Kangaroo Island.

Acanthiza albiventris North, *ib.*, p. 276: (Dubbo) New South Wales.

Acanthiza katherina De Vis, Annals Queensl. Mus., No. 6, p. 43, Sept. 1905: Bellenden Ker Range, Queensland.

Acanthiza halmaturina A. G. Campbell, Emu, Vol. V., p. 141, Jan. 1st, 1906: Kangaroo Island, South Australia.

Acanthiza whitlocki North, Vict. Naturalist, Vol. XXVI., p. 55, Sept. 9th, 1909: Lake Way, Mid-west Australia.

Acanthiza (sic) *archibaldi* Mathews, Nov. Zool., Vol. XVII., p. 501, Dec. 15th, 1910. New name for "*A. magnirostris* Campbell."

Acanthiza albiventris hamiltoni Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26th, 1911: "New South Wales" in error = Coonalpyn, South Australia.

Acanthiza pusilla venus Mathews, Nov. Zool., Vol. XVIII., p. 348, Jan. 31st, 1912: Venus Bay, South Australia.

Acanthiza tanami Mathews, *ib.*, p. 349: Tanami (Interior), Northern Territory.

Acanthiza pusilla arno Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 44, April 2nd, 1912: Arno Bay, Eyre's Peninsula, South Australia.

Acanthiza pusilla consobrina Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 78, June 28th, 1912: Leigh's Creek, Central (South) Australia.

Acanthiza pusilla samueli Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29th, 1913: Myponga, Fleurieu Peninsula, South Australia.

Acanthiza pusilla jayi Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 98, Sept. 24th, 1914: Jay Waterhole, MacDonnell Ranges, Central Australia.

Acanthiza pusilla peroni Mathews, Bull. Brit. Orn. Club, Vol. XXXIX., p. 23, Nov. 30th, 1918: Peron Peninsula, West Australia.

Acanthiza pusilla bunya Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 105, March 31st, 1920: Bunya Mts., Queensland.

Acanthiza pusilla nullarborensis H. L. White, Emu, Vol. XXI., pt. 3, p. 164, Jan. 14th, 1922: Zanthus, Nullabor Plains, east of West Australia.

Acanthiza pusilla cobborensis Mathews, Birds Austr., Vol. IX., pt. 8, p. 412, pl. 447, May 22nd, 1922: Cobbora, New South Wales.

Acanthiza dovei Mathews, *ib.*, p. 415 (pl. 451): Hogan's Track (Mount Arthur), Tasmania.

Acanthiza pusilla leeuwinensis A. G. Campbell, Emu, Vol. XXII., pt. 1, p. 63, July 1st, 1922: Wilson's Inlet, South-west Australia.

Acanthiza pusilla cambrensis A. G. Campbell, *ib.*, p. 64: Cape Jervis (Fleurieu Peninsula), South Australia.

Acanthiza pusilla dawsonensis A. G. Campbell, *ib.*: Rio Station, Dawson River, Queensland.

Acanthiza apicalis erema A. G. Campbell, *ib.*: Kychering Soak, East-West Railway, South Australia.

Acanthiza pusilla lingerandi Mathews, Birds Austr., Vol. IX., pt. 9, p. 430, Aug. 3rd, 1922: Lingerandi, Mallee, Victoria.

Acanthiza pusilla dundas Mathews, *ib.*, p. 431: Lake Dundas, West Australia.

Acanthiza pusilla northi Mathews, *ib.*: Wilson's Inlet, South-west Australia.

DISTRIBUTION. Eastern Australia, from North Queensland to Victoria, Tasmania and islands of Bass Strait, South Australia to West Australia, also across the Interior below the Tropics.

LIST OF BIRDS OF AUSTRALIA.

446. ACANTHIZA NANA. LITTLE TIT.

Gould, Vol. III., pl. 60 (pl. xxiii.), March 1st, 1846. Mathews, Vol. IX., pt. 9, pl. 449, Aug. 3rd, 1922.

Acanthiza nana Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, Feb. 17th, 1827: New South Wales (Sydney).

Acanthiza nana mathewsi Hartert, Bull. Brit. Orn. Club, Vol. XXV., p. 82, March 31st, 1910: Springvale, Victoria.

Acanthiza pygmaea Milligan, Emu, Vol. XII., pt. 3, p. 167, Jan. 1st, 1913: Mallee, Victoria.

Acanthiza nana dorotheae Mathews, Emu, Vol. XIV., pt. i., p. 60, July 1st, 1914: Lithgow, New South Wales.

Acanthiza nana dawsoniana H. L. White, Emu, Vol. XVIII., pt. 2, p. 122, Oct. 1918: Dawson River, Central Queensland.

Acanthiza nana clelandi Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 106, March 31st, 1920: Bunya Mts., South Queensland.

Not *A. lineata clelandi* Mathews, Nov. Zool., Vol. XVIII., p. 349, 1912.

Acanthiza nana burtoni Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 121, April 30th, 1920. New name for preceding.

Acanthiza nana belltrees A. G. Campbell, Emu, Vol. XXII., pt. i., p. 64, July 1st, 1922: Scone, New South Wales.

Acanthiza nana flava H. L. White, Emu, Vol. XXII., pt. ii., p. 97, Oct. 1922: Herberton, North Queensland.

DISTRIBUTION. Eastern Australia from South Australia; Victoria, through New South Wales to the Dawson River, Queensland.

447. ACANTHIZA INORNATA. PLAIN-COLOURED TIT.

Gould, Vol. III., pl. 59 (pt. xxiv.), Sept. 1st, 1846. Mathews, Vol. IX., pt. 9, pl. 449, Aug. 3rd, 1922.

Acanthiza inornata Gould, Proc. Zool. Soc. (Lond.), 1840, p. 171, July 1841: Swan River, West Australia.

Acanthiza mastersi North, Agric. Gazette, N.S.W., Vol. XII., p. 1425, Nov. 1901: King George's Sound, West Australia.

Acanthiza inornata submastersi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 43, April 2nd, 1912: Stirling Ranges, South-west Australia.

Acanthiza inornata carnarvoni Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29th, 1913: Carnarvon, Mid-west Australia.

Acanthiza inornata strellyi Mathews, *ib.*: Strelly River, Mid-west Australia.

DISTRIBUTION. West Australia, from the Stirling Ranges northward to Strelly River.

448. ACANTHIZA LINEATA. STRIATED TIT.

Gould, Vol. III., pl. 61 (pt. xx.), Sept. 1st, 1845. Mathews, Vol. IX., pt. 9, pl. 450, Aug. 3rd, 1922.

Acanthiza lineata Gould, Synops. Birds Austr., pt. iv., pl. (59), April 1st, 1838: New South Wales (Sydney).

Acanthiza modesta De Vis, Annals Queensl. Mus., Vol. 6, p. 43, Sept. 1905: Charleville, Queensland.

Acanthiza lineata chandleri Mathews, Nov. Zool., Vol. XVIII., p. 349, Jan. 31st, 1912: Olinda, Victoria.

Acanthiza lineata clelandi Mathews, *ib.*: Mount Lofty, South Australia.

Acanthiza lineata whitei Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 44, April 2nd, 1912: Kangaroo Island, South Australia.

Acanthiza lineata goulburni Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 93, Sept. 18th, 1912: Goulburn, New South Wales.

Acanthiza lineata whitei Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 106, March 31st, 1920: Bunya Mts., South Queensland.

Not *A. l. whitei* above.

Acanthiza lineata alberti Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 121, April 30th, 1920. New name for preceding.

DISTRIBUTION. Eastern Australia, from North Queensland (Charleville) to South Australia; Kangaroo Island.

449. ACANTHIZA UROPYGIALIS. CHESTNUT-RUMPED TIT.

Gould, Vol. III., pl. 56 (pt. xxi.), Dec. 1st, 1845. Mathews, Vol. IX., pt. 9, pl. 450, Aug. 3rd, 1922.

LIST OF BIRDS OF AUSTRALIA.

- Acanthiza uropygialis* Gould, Synops. Birds Austr., pt. iv., pl. (60), April 1st, 1838 : New South Wales.
- Acanthiza uropygialis ruthergleni* Mathews, Nov. Zool., Vol. XVIII., p. 350, Jan. 31st, 1912 : Rutherglen, Victoria.
- Acanthiza uropygialis melli* Mathews, *ib.* : Eyre's Peninsula, South Australia.
- Acanthiza uropygialis augusta* Mathews, *ib.* : Port Augusta, South Australia.
- Acanthiza uropygialis nea*, Mathews, *ib.* : Burracoppin, South-west Australia.
- Acanthiza uropygialis murchisoni* Mathews, *ib.* : East Murchison, West Australia.
- Acanthiza uropygialis condora* Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 78, June 28th, 1912 : Leigh's Creek, South (Central) Australia.
- Geobasileus uropygialis moora* A. G. Campbell, Emu, Vol. XXII., pt. i., p. 65, July 1st, 1922 : Watheroo, near Moora, West Australia.
- Geobasileus uropygialis erema* A. G. Campbell, *ib.* : Kychering Soak, East-West Railway, South Australia.
- Acanthiza uropygialis kycheringi* Mathews, Bull. Brit. Orn. Club, Vol. XLIII., p. 14, Oct. 31st, 1922. New name for preceding, not *Acanthiza apicalis erema* A. G. Campbell before.
- DISTRIBUTION. Southern extra-tropical Australia from East to West, in the dry districts only.

450. ACANTHIZA IREDALEI. THIN-BILLED TIT.

Mathews, Vol. IX., pt. 9, pl. 451, Aug. 3rd, 1922.

- Acanthiza tenuirostris* Zietz, Trans. Roy. Soc. South Austr., Vol. XXIV., pt. ii., p. 112, Dec. 1900 : Leigh's Creek, Interior South Australia.
- Not *Acanthiza tenuirostris* Lafresnaye, Revue Zool., 1841, p. 242.
- Acanthiza iredalei* Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26th, 1911 : Lake Way, West Australia.
- Acanthiza morgani* Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 97, May 26th, 1911. New name for *A. tenuirostris* Zietz.
- Acanthiza winiamida* Wilson, Emu, Vol. XVI., pt. 3, p. 169, Jan. 15th, 1917 : Winiam East, 12 miles S.E. of Nhill, Victoria.
- DISTRIBUTION. Across Central Australia from Shark's Bay, West Australia, to the Victorian Mallee.

CCCLXIII. Genus *MILLIGANIA*.

- Milligania* Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 112, Dec. 24th, 1912. Type (by original designation) : *Acanthiza robustirostris* Milligan.

451. MILLIGANIA ROBUSTIROSTRIS. THICK-BILLED TIT.

Mathews, Vol. IX., pl. 9, pl. 451, Aug. 3rd, 1922.

- Acanthiza robustirostris* Milligan, Emu, Vol. III., pt. i., p. 71, July 1st, 1903 : Day Dawn, Murchison, West Australia.
- Acanthiza marianæ* S. A. White, South Austr. Ornith., Vol. II., pt. 2, p. 45, April 1st, 1915 : Moorilyanna, Everard Ranges, Central Australia.
- Milligania robustirostris liberia* Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916 : Liberia Soak, West Australia.
- Milligania robustirostris moorilyanna* Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916 : Moorilyanna, Everard Ranges, Central Australia.
- DISTRIBUTION. Central Australia, mostly western.

CCCLXIV. Genus *GEOBASILEUS*.

- Geobasileus* Cabanis, Mus. Heine, Vol. I., p. 32 (after Oct. 23rd), 1851. Type (by monotypy) : *Saxicola chrysorrhoa* Quoy et Gaimard.

452. GEOBASILEUS CHRYSORRHOUS. YELLOW-RUMPED TIT.

Gould, Vol. III., pl. 63 (pt. xvi.), Sept. 1st, 1844. Mathews, Vol. IX., pt. 9, pl. 452, Aug. 3rd, 1922.

- Saxicola chrysorrhoa* Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 198, pl. 10, f. 2 (pref. June 29th), 1830 : New South Wales.

LIST OF BIRDS OF AUSTRALIA.

- Acanthiza squamata* De Vis, Proc. Roy. Soc. Queensl., Vol. VI., pt. 5, p. 248, 1889, 1890: Herberton, Queensland.
- Acanthiza pallida* Milligan, Emu, Vol. III., pt. II., p. 112, Oct. 1st, 1903: Yalgoo, Murchison, West Australia.
Not *Acanthiza pallida* "Temm." Finsch., Notes Leyden Mus., Vol. XX., p. 134, Sept. 1898.
- Acanthiza leighi* Grant, Bull. Brit. Orn. Club, Vol. XXIII., p. 73, May 7th, 1909: Lithgow, New South Wales.
- Acanthiza chrysorrhoa sandlandi* Mathews, Nov. Zool., Vol. XVIII., p. 351, Jan. 31st, 1912: (Blackburn) Victoria.
- Acanthiza chrysorrhoa leachi* Mathews, *ib.*: Tasmania.
- Acanthiza chrysorrhoa perksi* Mathews, *ib.*: (Mount Lofty) South Australia.
- Acanthiza chrysorrhoa multi* Mathews, *ib.*: Wilson's Inlet, South-west Australia.
- Acanthiza chrysorrhoa addenda* Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 44, April 2nd, 1912: Port Augusta, South Australia.
- Geobasileus chrysorrhous normantoni* Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 76, Dec. 29th, 1913: Normanton, Queensland.
- Geobasileus chrysorrhous ferdinandi* Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Musgrave Ranges, Central Australia.
- Geobasileus chrysorrhous alexanderi* Mathews, Austral Av. Rec., Vol. IV., pt. 6, p. 137, Aug. 1st, 1921. New name for *Acanthiza pallida* Milligan as above.
- Geobasileus chrysorrhous pallescens* A. G. Campbell, Emu, Vol. XXII., pt. 1, p. 65, July 1st, 1922: Levi Ranges, Central Australia.
- Geobasileus chrysorrhous westernensis* A. G. Campbell, *ib.*: Watheroo, near Moora, West Australia.
- Geobasileus chrysorrhous mallee* A. G. Campbell, *ib.*, p. 66: Mallee, Victoria.

DISTRIBUTION. Australia and Tasmania, except extreme north and north-west

453. GEOBASILEUS REGULOIDES. BUFF-RUMPED TIT.

Gould, Vol. III., pl. 62 (pt. XXII.), March 1st, 1846. Mathews, Vol. IX., pt. 9, pl. 452, Aug. 3rd, 1922.

- Acanthiza reguloides* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, Feb. 17th, 1827: Parramatta, New South Wales.
- Geobasileus australis* North, Austr. Mus. Sp. Cat., No. 1, Vol. I., pt. IV., p. 287, July 11th, 1904: Woodside, near Adelaide, South Australia.
- Acanthiza reguloides connectens* Mathews, Nov. Zool., Vol. XVIII., p. 352, Jan. 31st, 1912: (Ringwood) Victoria.
- Geobasileus reguloides tarana* Mathews, Emu, Vol. XIV., pt. I., p. 60, July 1st, 1914: Tarana, New South Wales.
- Geobasileus reguloides cobbora* Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 130, Jan. 28th, 1915: Cobbora, New South Wales.
- Geobasileus reguloides nesa* Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 106, March 31st, 1920: Bunya Mts., South Queensland.

DISTRIBUTION. Eastern Australia, from South Queensland to South Australia. Not Tasmania.

454. GEOBASILEUS HEDLEYI. DARK BROWN TIT.

Mathews, Vol. IX., pt. 9, pl. 453, Aug. 3rd, 1922.

- Acanthiza iredalei hedleyi* Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 78, June 28th, 1912: Meningie, South Australia.
- Acanthiza rosinae* Mathews, Austral Av. Rec., Vol. II., pt. I., p. 9, Aug. 2nd, 1913: near Adelaide, South Australia.

DISTRIBUTION. Samphire country of southern South Australia.

CCCLXV. Genus *PYRRHOLAEMUS*.

Pyrrholaemus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 173, July 1841. Type (by monotypy): *P. brunneus* Gould.

455. PYRRHOLAEMUS BRUNNEUS. RED-THROAT.

Gould, Vol. III., pl. 68 (pt. XVII.), Dec. 1st, 1844. Mathews, Vol. IX., pt. 9, pl. 453, Aug. 3rd, 1922.

- Pyrrholaemus brunneus* Gould, Proc. Zool. Soc. (Lond.), 1840, p. 173, July 1841: Belts of the Murray, South Australia.
- Sericornis brunnea pallescens* Mathews, Nov. Zool., Vol. XVIII., p. 353, Jan. 31st, 1912: Bore Well, East Murchison, West Australia.

LIST OF BIRDS OF AUSTRALIA.

Pyrrholaemus brunneus milligani Mathews, Birds Austr., Vol. IX., pt. 9, p. 489, Aug. 3rd, 1922 : Wongan Hil , West Australia.

Pyrrholaemus brunneus kalgoorlie Mathews, *ib.* : Kalgoorlie, South-west Australia.

Pyrrholaemus brunneus centra Mathews, *ib.* : (Musgrave Ranges) Central Australia.

DISTRIBUTION. Extra-tropical Australia from East to West in the dry districts only.

CCCLXVI. Genus *NEOSERICORNIS*.

Neosericornis Mathews, Nov. Zool., Vol. XVIII., p. 353, Jan. 31st, 1912. Type (by monotypy): *Muscicapa lathamii* Stephens.

456. *NEOSERICORNIS LATHAMI*. YELLOW-THROATED SCRUB-WREN.

Gould, Vol. III., pl. 46 (pt. xiv.), March 1st, 1844. Mathews, Vol. IX., pt. 9, pl. 453, Aug. 3rd, 1922.

Muscicapa barbata Latham, Index Ornith. Suppl., p. li. (after May 30th), 1801 : New South Wales (Sydney).
Not *Muscicapa barbata* Latham, Index Ornith., Vol. II., p. 488, 1790.

Muscicapa lathamii Stephens in Shaw's Gen. Zool., Vol. X., p. 336, Sept. 1817. New name for *Muscicapa barbata* Latham, 1801=Sydney, New South Wales.

Sericornis citreogularis Gould, Synops. Birds Austr., pt. iv. (pl. 58, f. 4), April 1st, 1838 : New South Wales.

Sericornis lathamii cairnsii Mathews, Nov. Zool., Vol. XVIII., p. 354, Jan. 31st, 1912 : Cairns, Queensland.

Sericornis lathamii intermedia Mathews, *ib.* : Blackall Ranges, Queensland.

DISTRIBUTION. Queensland, New South Wales, Victoria (?).

Extra Australian genera, etc., described since Vol. VII. of my "Birds of Australia" was published :—

GENERA *Amoropelia*, Austral Av. Rec., Vol. IV., pt. 6, p. 164, Aug. 1st, 1921.

SPECIES *Raperia godmanæ*, *ib.*, Vol. III., pt. i., p. 24, June 30th, 1915.

SUBSTITUTE NAMES, *ib.*, Vol. V., pts. 2-3, p. 44, Feb. 21st, 1923 :—

Charadrius flavirostris for *Charadrius hiaticula* L.

Turdus cantor for *Turdus philomelus* Brehm.

(Not *Turdus cantor* Gmelin, Sept. Nat., Vol. I., p. 837, 1789.)

Motacilla rubricapilla for *Motacilla atricapilla* L.

SUBSPECIES *Drymodes brunneopygia adjacens*, Birds of Australia, Vol. IX., p. 218, Dec. 15th, 1921.

Neonectris griseus missus, Ibis, 1915, p. 603 (July), (with T. Iredale).

Emberiza compiler, Austral Av. Rec., Vol. IV., pts. 4-5, p. 131, Dec. 16th, 1920 (*ib.*).

THE BIRDS OF AUSTRALIA.

THE
BIRDS
OF
AUSTRALIA

BY
GREGORY M. MATHEWS
F.R.S.E.

MEMBER OF THE ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION
AND THE BRITISH ORNITHOLOGISTS' UNION
CORRESPONDING FELLOW OF THE AMERICAN ORNITHOLOGISTS' UNION

WITH HAND-COLOURED PLATES

VOLUME X.

H. F. & G. WITHERBY
326 HIGH HOLBORN LONDON
1922—1923



CONTENTS

AND

LIST OF PLATES.

Order PASSERIFORMES (*continued*)

Family SYLVIIDÆ (*continued*)

	PAGE
Genus SERICORNIS	1
No. 544. LARGE-BILLED SCRUB-WREN, <i>Sericornis magnirostris</i> .	3
Plate 454 lettered <i>Sericornis magnirostris</i> , to face . .	3 .
No. 545. SCRUB-WREN, <i>Sericornis frontalis</i>	7
Plate 455 (two middle figures) lettered <i>Sericornis frontalis</i> , to face	7 .
No. 546. BUFF-BREASTED SCRUB-WREN, <i>Sericornis lævigaster</i> .	15
Plate 455 (bottom right-hand figure) lettered <i>Sericornis herbertoni</i> , to face	7 .
No. 547. LITTLE SCRUB-WREN, <i>Sericornis minimus</i>	17
Plate 455 (top figure) lettered <i>Sericornis frontalis</i> , to face .	7 .
No. 548. SPOTTED SCRUB-WREN, <i>Sericornis maculatus</i>	20
Plate 456 lettered <i>Sericornis maculatus</i> , to face	20 .
— NORTHERN SCRUB-WREN, <i>Sericornis tyrannulus</i>	29
 Genus TASMANORNIS	
No. 549. BROWN SCRUB-WREN, <i>Tasmanornis humilis</i>	31
Plate 457 lettered <i>Tasmanornis humilis</i> , to face	31 .

THE BIRDS OF AUSTRALIA.

	PAGE
Genus OREOSCOPUS	39
No. 550. FERN-WREN, lettered COLLARED SCRUB-WREN, <i>Oreoscopus gutturalis</i>	40
Plate 458 (top figure) lettered <i>Oreoscopus gutturalis</i> , to face .	40
Genus ACANTHORNIS	
No. 551. SCRUB-TIT, <i>Acanthornis magnus</i>	43
Plate 458 (left-hand figure) lettered <i>Acanthornis magnus</i> , to face	40
Genus MALURUS	47
No. 552. BLUE WREN, <i>Malurus cyaneus</i>	48
Plate 459 lettered <i>Malurus cyaneus</i> , to face	48
No. 553. BLACK-BACKED WREN, <i>Malurus melanotus</i>	61
Plate 460 (bottom figures) lettered <i>Malurus melanotus</i> , to face	61
No. 554. BANDED WREN, <i>Malurus splendens</i>	70
Plate 460 (top figures) lettered <i>Malurus splendens</i> , to face .	61
Genus HALLORNIS	74
No. 555. WHITE-WINGED WREN, <i>Hallornis leuconotus</i>	75
Plate 461 (left-hand figures) lettered <i>Hallornis leuconotus</i> , to face	75
Genus NESOMALURUS	85
No. 556. BLACK AND WHITE WREN, <i>Nesomalurus leucopterus</i>	86
Plate 461 (right-hand figures) lettered <i>Nesomalurus leucopterus</i> , to face	75
Genus LEGGEORNIS	
No. 557. VARIEGATED WREN, <i>Leggeornis lamberti</i>	94
Plate 462 (bottom figures) lettered <i>Leggeornis lamberti</i> , to face	95
No. 558. RED-WINGED WREN, <i>Leggeornis elegans</i>	103
Plate 462 (top figures) lettered <i>Leggeornis elegans</i> , to face .	95
No. 559. LOVELY WREN, <i>Leggeornis amabilis</i>	106
Plate 463 (bottom figures) lettered <i>Leggeornis amabilis</i> , to face	106
No. 560. BLUE-BREASTED WREN, <i>Leggeornis pulcherrimus</i>	111
Plate 463 (two top figures) lettered <i>Leggeornis pulcherrimus</i> , to face	106
Genus RYANIA	115
No. 561. RED-BACKED WREN, <i>Ryania melanocephala</i>	116
Plate 464 (two top figures) lettered <i>Ryania melanocephala</i> , to face	116

CONTENTS.

	PAGE
Genus ROSINA	124
No. 562. PURPLE-CROWNED WREN, <i>Rosina coronata</i>	125
Plate 464 (two bottom figures) lettered <i>Rosina coronata</i> , to face	116
Genus STIPITURUS	130
No. 563. EMU-WREN, <i>Stipiturus malachurus</i>	131
Plate 465 lettered <i>Stipiturus malachurus</i> , to face	131
No. 564. RUFOUS-CROWNED EMU-WREN, <i>Stipiturus ruficeps</i> . .	146
Plate 465 (top left-hand figure) lettered <i>Stipiturus malachurus</i> , to face	131
Genus DASYORNIS	149
No. 565. BRISTLE BIRD, <i>Dasyornis brachypterus</i>	151
Plate 466 (middle figure) lettered <i>Sphenura brachyptera</i> , to face	151
No. 566. LONG-BILLED BRISTLE-BIRD, <i>Dasyornis longirostris</i> . .	154
Plate 466 (top figure) lettered <i>Sphenura longirostris</i> , to face	151
Genus MACCOYORNIS	157
No. 567. RUFOUS BRISTLE-BIRD, <i>Maccoyornis broadbenti</i>	158
Plate 466 (bottom figure) lettered <i>Maccoyornis broadbenti</i> , to face	151
Genus DIAPHORILLAS	165
No. 568. GRASS-WREN, <i>Diaphorillas textilis</i>	172
Plates 467 and 468 (bottom figures) lettered <i>Diaphorillas textilis</i> , to face	172 and 183
No. 569. THICK-BILLED GRASS-WREN, <i>Diaphorillas modestus</i> . .	183
Plate 468 (top figures) lettered <i>Diaphorillas modestus</i> , to face	183
No. 570. EASTERN GRASS-WREN, <i>Diaphorillas inexpectatus</i> . . .	186
Plate 469 (two top figures) lettered <i>Diaphorillas inexpectatus</i> , to face	186
No. 571. UNIFORM GRASS-WREN, <i>Diaphorillas purnelli</i>	190
Plate 472 (two lower figures) lettered <i>Diaphorillas purnelli</i> , to face	209
No. 572. STRIATED GRASS-WREN, <i>Diaphorillas striatus</i>	193
Plate 470 (left-hand figures) lettered <i>Mytisa striata</i> , to face .	193
—— CHESTNUT-MANTLED GRASS-WREN, <i>Diaphorillas merrotsyi</i> . .	198
Plate 469 (bottom left-hand figure) lettered <i>Diaphorillas merrotsyi</i> to face	186
No. 573. RUFOUS GRASS-WREN, <i>Diaphorillas whitei</i>	200
Plate 470 (right-hand figures) lettered <i>Mytisa whitei</i> , to face	193

THE BIRDS OF AUSTRALIA.

	PAGE
Genus EYRAMYTIS	205
No. 574. LAKE EYRE GRASS-WREN, <i>Eyramytis goyderi</i> . . .	206
Plate 471 lettered <i>Eyramytis goyderi</i> , to face . . .	206
Genus MAGNAMYTIS	208
No. 575. BLACK AND WHITE GRASS-WREN, <i>Magnamytis dorotheæ</i> .	209
Plate 472 (top figure) lettered <i>Magnamytis dorotheæ</i> , to face .	209
No. 576. WHITE-THROATED GRASS-WREN, <i>Magnamytis woodwardi</i> .	211
Plate 473 lettered <i>Magnamytis woodwardi</i> , to face . . .	211
No. 577. BLACK GRASS-WREN, <i>Magnamytis housei</i>	213
Plate 474 lettered <i>Amytornis housei</i> , to face	213
Family ARTAMIDÆ	215
Genus ARTAMUS	215
No. 578. WHITE-RUMPED WOOD-SWALLOW, <i>Artamus leucorhynchus</i> .	217
Plate 475 (bottom right-hand figure) lettered <i>Artamus</i> <i>leucorhynchus</i> , to face	217
Genus CAMPBELLORNIS	225
No. 579. MASKED WOOD-SWALLOW, <i>Campbellornis personatus</i> .	226
Plate 475 (top figures) lettered <i>Campbellornis personatus</i> , to face	217
No. 580. WHITE-BROWED WOOD-SWALLOW, <i>Campbellornis super-</i> <i>ciliosus</i>	235
Plate 476 (two top figures) lettered <i>Campbellornis superciliosus</i> , to face	235
Genus AUSTRARTAMUS	243
No. 581. BLACK-FACED WOOD-SWALLOW, <i>Austrartamus melanops</i> .	244
Plate 477 (two bottom figures) lettered <i>A. cinereus</i> and <i>A.</i> <i>tregallasi</i> , to face	244
Genus ANGROYAN	256
No. 582. WOOD-SWALLOW, <i>Angroyan cyanopterus</i>	257
Plate 476 (lower figure) lettered <i>Pseudartamus cyanopterus</i> , to face	235
Genus MICRARTAMUS	268
No. 583. LITTLE WOOD-SWALLOW, <i>Micrartamus minor</i> . . .	269
Plate 477 (top figure) lettered <i>Micrartamus minor</i> , to face	244

CONTENTS.

	PAGE
Family PRIONOPIDÆ	274
Genus COLLURICINCLA	276
No. 584. GREY SHRIKE-THRUSH, <i>Colluricincla harmonica</i>	278
Plate 478 lettered <i>Colluricincla harmonica</i> , to face	278
No. 585. BROWN SHRIKE-THRUSH, <i>Colluricincla brunnea</i>	290
Plate 479 lettered <i>Colluricincla brunnea</i> , to face	290
No. 586. BUFF-BELLIED SHRIKE-THRUSH, <i>Colluricincla rufiventris</i>	295
Plate 479 (top right-hand figure) lettered <i>Colluricincla rufiventris</i> , to face	290
Genus ALPHACINCLA	301
No. 587. RED-BELLIED SHRIKE-THRUSH, <i>Alphacincla woodwardi</i> ,	302
Plate 480 (lower figure) lettered <i>Alphacincla woodwardi</i> , to face	302
Genus CONIGRAVEA	304
No. 588. LITTLE SHRIKE-THRUSH, <i>Conigravea parvula</i>	306
Plate 480 (upper figure) lettered <i>Conigravea parvula</i> , to face	302
Genus CALEYA	309
No. 589. RUFOUS-BREASTED SHRIKE-THRUSH, <i>Caleyia megarhyncha</i>	310
Plate 481 (upper figure) lettered <i>Caleyia megarhyncha</i> , to face	310
Genus BOWYERIA	316
No. 590. STRIPE-BREASTED SHRIKE-THRUSH, <i>Bowyeria boweri</i>	317
Plate 481 (lower figure) lettered <i>Bowyeria boweri</i> , to face	310
Genus GRALLINA	320
No. 591. MAGPIE-LARK, <i>Grallina cyanoleuca</i>	323
Plate 482 lettered <i>Grallina cyanoleuca</i> , to face	323
Family CRACTICIDÆ.	334
Genus GYMNORHINA	336
No. 592. BLACK-BACKED MAGPIE, <i>Gymnorhina tibicen</i>	337
Plate 483 (upper figures) lettered <i>Gymnorhina tibicen</i> , to face	337
No. 593. WHITE-BACKED MAGPIE, <i>Gymnorhina hypoleuca</i>	350
Plate 483 (lower figures) lettered <i>Gymnorhina leuconota</i> , to face	337

THE BIRDS OF AUSTRALIA.

	PAGE
Genus MELLORIA	365
No. 594. BLACK BUTCHER-BIRD, <i>Melloria quoyi</i>	366
Plate 484 lettered <i>Melloria quoyi</i> , to face	366 .
Genus CRACTICUS	
No. 595. BLACK-THROATED BUTCHER-BIRD, <i>Cracticus nigrogularis</i>	374
Plate 485 lettered <i>Cracticus nigrogularis</i> , to face	374 .
Genus BULESTES	383
No. 596. COLLARED BUTCHER-BIRD, <i>Bulestes torquatus</i>	384 .
Plate 486 lettered <i>Bulestes torquatus</i> , to face	384 .
No. 597. BLACK-BACKED BUTCHER-BIRD, <i>Bulestes mentalis</i>	398
Plate 487 lettered <i>Bulestes kempi</i> , to face	398 .
Genus STREPERA	401
No. 598. PIED CROW-SHRIKE, <i>Strepera graculina</i>	406
Plate 488 (bottom figure) lettered <i>Strepera graculina</i> , to face	406 .
No. 599. BLACK-WINGED CROW-SHRIKE, <i>Strepera melanoptera</i>	413
Plate 489 lettered <i>Strepera melanoptera</i> , to face	413 .
No. 600. BLACK CROW-SHRIKE, <i>Strepera fuliginosa</i>	418
Plate 488 (top figure) lettered <i>Strepera fuliginosa</i> , to face	406 .
No. 601. GREY CROW-SHRIKE, <i>Strepera versicolor</i>	423
Plate 490 lettered <i>Strepera versicolor</i> , to face	423 .

PREFACE.

THIS, the end of Volume X., sees the close of my work in sight, that is to say, all the manuscript is prepared. This volume contains 123 figures, and 520 pages, of which 56 are taken up with the Check List, part II. (which is to be bound up at the beginning of the volume), bringing us up to the end of Volume IX. In this List I have brought part I. up to date, so that all the available literature is together in these pages, thus making it a useful book of reference.

I have also prepared a Bibliography of Australian Ornithology, which I will publish later on.

My correspondence with my fellow workers on the Royal Australasian Ornithologists' Union Check List Committee goes far to show how close we are in general agreement, and I feel sure that the few remaining points will soon be satisfactorily settled. We shall then have an up-to-date and useful List on which to work.

I am glad to record that Mr. H. L. White has been describing the nests and eggs for some time and will continue to do so until the work is finished.

I have to thank also all those who have contributed notes; their names are mentioned in the body of the work. I hope all who are interested will send me over any fresh piece of information that may be found.

It is satisfactory to note that at a meeting of the Committee of the British Ornithologists' Union on Nomenclature many of the corrections put forward in the *Austral Avian Record* were accepted, and it was decided that a larger number of genera should be used.

GREGORY M. MATHEWS.

FOULIS COURT, FAIR OAK, HANTS.

July 1st, 1923.

GENUS—SERICORNIS.

SERICORNIS Gould, Synops. Birds Austr., pt. iv, pl. 58,

April 1st, 1838. Type (by original designation) ... *Acanthiza frontalis*
Vigors and Horsfield.

GOULD described this new genus before he went to Australia, from specimens in his own Collection, naming as type *Acanthiza frontalis* Vigors and Horsfield and describing two new species *S. parvulus* and *S. humilis*.

Small birds with long bills, long rounded wings, rounded tail, medium legs and small feet.

The bill is as long as the head, straight and slender, laterally compressed, very slightly expanded at the base, the culmen very little curved, the tip slightly decurved with a slight posterior notch; the nasal groove is less than half the length of the bill, the nostrils linear; there are no nasal bristles and the rictal bristles are minute and obscure. The under mandible is as deep as the upper, the interramal space nearly half its length, the gonys appreciably ascending.

The wing has the fourth, fifth and sixth primaries longest, the seventh and eighth very little shorter, the third less than the ninth, but longer than the secondaries which are however longer than the second primary; the first primary is more than half the length of the second but not half the length of the third.

The tail is long and slightly rounded.

The legs are medium in length and strength for the size of the bird; the front of the tarsus is booted and the hind part bilaminate; the hind toe and claw is longer than the middle toe and claw, the hind toe stronger and the hind claw longer; the anterior toes weak, the inner and outer toes subequal and the middle toe alone equal to the inner toe and claw.

The species *magnirostris* is somewhat aberrant, the bill longer and the front of the tarsus obscurely scutellate; in the form I have named *S. m. kerri* the tarsus is clearly scutellate. In order to keep this in view, I propose the subgeneric name *Megathiza* and name *Sericornis magnirostris kerri* Mathews as type, as *MEGATHIZA KERI*.

It may be noted that Gould described this species as an *Acanthiza* at the time he introduced his new genus *Sericornis*. Campbell and Barnard also remark on this point.

THE BIRDS OF AUSTRALIA.

Key to the Species.

No white eyebrow	<i>magnirostris</i>
White eyebrow	
Throat and breast distinctly spotted, bar on tail	<i>maculatus</i>
Throat only spotted, no bar on tail	<i>frontalis</i>
Throat white, distinct bar on tail	<i>laevigaster</i>
Throat white, no bar on tail	<i>minimus</i>



H. Grönvold. del

Witherby & Co

SERICORNIS MAGNIROSTRIS
(*LARGE-BILLED SCRUB-WREN*)

SERICORNIS MAGNIROSTRIS.

LARGE-BILLED SCRUB-WREN.

(PLATE 454.)

ACANTHIZA MAGNIROSTRA Gould, Synops. Birds Austr., pt. iv., pl. (60), April 1st, 1838 :
New South Wales.

Acanthiza magnirostra Gould, Synops. Birds Austr., pt. iv., pl. (60), 1838.

Sericornis magnirostris Gould, Birds Austr., pt. xx. (Vol. III., pl. 52), Sept. 1st, 1845 ;
id., Handb. Birds Austr., Vol. I., p. 362, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.),
1875, p. 590 ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat.
Birds Brit. Mus., Vol. VII., p. 305, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9,
1888 ; Hall, Key Birds Austr., p. 26, 1899 ; Campbell, Nests and Eggs Austr. Birds,
Vol. I., p. 247, 1901 ; Broadbent, Ibis, 1902, p. 381 ; North, Austr. Mus. Spec.
Cat. No. 1, Vol. I., p. 302, 1904 ; Mathews, Handl. Birds Austral., p. 76, 1908 ;
A. G. Campbell, Emu, Vol. X., p. 37, 1910 ; Mellor, *ib.*, p. 209 ; Broadbent, *ib.*, p. 237.

Sericornis brevirostris Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 590, April 1st, 1876 :
? lapsus for *magnirostris* or *Smicrornis* ?

Sericornis magnirostris magnirostris Mathews, Nov. Zool., Vol. XVIII., p. 355, 1912 ; *id.*,
List Birds Austr., p. 221, 1913.

Sericornis magnirostris viridior Mathews, Nov. Zool., Vol. XVIII., p. 355, Jan. 31st, 1912 :
Cairns, Queensland ; *id.*, List Birds Australia, p. 221, 1913 ; Campbell and Barnard,
Emu, Vol. XVII., p. 27, 1917.

Sericornis magnirostris howei Mathews, Nov. Zool., Vol. XVIII., p. 355, Jan. 31st, 1912 :
Gippsland, Victoria ; *id.*, List Birds Austr., p. 221, 1913.

Sericornis magnirostris bunya Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 106, March 31st,
1920 : Bunya Mounts., South Queensland.

Sericornis magnirostris keri Mathews, *ib.*, Bellenden Ker, North Queensland.

DISTRIBUTION. New South Wales ; Queensland ; Victoria.

Adult male. General colour of the upper-surface ochreous-brown including the top of the
head, entire back, upper tail-coverts, scapulars, and upper wing-coverts, with pale
tips to the feathers of the bastard-wing and greater coverts ; outer aspect of flight-
quills and tail-feathers inclining to rust-brown ; inner webs of flight-quills blackish ;
sides of face, base of fore-head and throat buff, paler on the last ; breast and abdomen
yellowish ; sides of body ochreous ; thighs and under tail-coverts fulvous ; axillaries
and under wing-coverts yellowish-buff ; under-surface of flight-quills dark brown
with pale edges ; lower aspect of tail similar to its upper-surface. Eyes brown,

THE BIRDS OF AUSTRALIA.

bill black, feet flesh. Total length 100 mm. ; culmen 12, wing 56, tail 39, tarsus 20. Figured. Collected at Atherton Scrub, Cairns, North Queensland, in September 1908, and is the type of *S. m. viridior*. (top figure.)

Adult female. Similar to the adult male.

Adult. General colour of the upper-surface rust-brown including the top of the head, entire back, wings, and tail ; bastard-wing, primary-coverts, and inner webs of flight-quills dark brown ; sides of the face like the back ; the feathers on the fore-part of the head somewhat darker on the edges which gives a scalloped appearance ; throat buffy-white ; breast and abdomen ochreous-yellow ; sides of body, thighs, and under tail-coverts ochreous-brown ; axillaries and under wing-coverts similar to the sides of the body ; under-surface of flight-quills dark brown with pale edges ; lower aspect of tail similar to its upper-surface. Eyes brown ; bill black ; feet flesh. Total length 120 mm. ; culmen 12, wing 60, tail 46, tarsus 24. Figured. Collected at Bellenden Ker, North Queensland, in June 1889, and is the type *S. m. kerii*.

Immature. "Young birds may be distinguished by having the upper parts olive-brown, the forehead and sides of the head buff, throat pale buff, and the remainder of the under-surface pale buff tinged with olive." (North.)

Nest. Oval in form with side entrance. Constructed of leaves, moss, etc., lined with feathers. Outside measurements 8 inches long by 4 or 5 wide.

Eggs. Clutch three. Whitish or grey, finely spotted with brown especially at the larger end where a zone is formed. 18-19 mm. by 14-15.

Breeding-season. August to January.

THIS species was described as an *Acanthiza* by Gould before he went to Australia and his field notes are the first to be recorded which dealt mostly with the curious nest, the remainder reading : "The *Sericornis magnirostris* is an inhabitant of the brushes of New South Wales, both those which clothe the gullies and sides of the mountain ranges of the interior, and those near the coast, such as occur at Illawarra and on the banks of the Hunter, the Clarence, the Macleay, and other rivers. Although it has nothing either in its form or colouring to recommend it to notice, it must always be an object of interest, from the very singular nest it constructs The large-billed *Sericornis* is a very active but shy bird, keeping much among the branches of the high trees, where it gains a plentiful supply of insect food ; it may, however, be easily enticed into view by imitating the squeak of its young. The sexes do not differ in external appearance, nor do the young when fully fledged offer any variation in colour from the adult."

Mr. J. W. Mellor states : "This is fairly plentiful and widely distributed in northern New South Wales and Queensland. I have found it at Cooroy, Blackall Ranges, S. Queensland and on the Tuggerah district in New South Wales. It builds an exceptionally bulky nest for such a small bird, being one of the smallest of the genus. Its habits are more arboreal, it takes to the higher branches of low trees where it somewhat resembles a Tit (*Acanthiza*) from its

LARGE-BILLED SCRUB-WREN.

coloration and mode of prying about in the branches of the trees and bushes and I have often mistaken the bird for that genus; it goes about in small companies of three or four like some of the Tits."

Mr. Edwin Ashby wrote: "I collected a specimen in the deep tree fern gullies near Boolara, Gippsland, in July, 1886. I also found it nesting in the Blackall Range, Queensland."

Mr. A. G. Campbell also wrote me: "A bird which I have examined, shot from a flock of eight or ten at Loch, South Gippsland, Oct., 1897, is undoubtedly referable to this species. In its true home, the coastal scrubs of Queensland and New South Wales, this species is found to be a bird of some daring in that it frequently usurps another bird's nest in which to rear its own offspring. The curious bulky moss-made nests of *Sericornis lathamii* hanging among the pendent lawyer cane (*Calamus*) or other vines is most often coveted, and the rightful owners driven away just as they have completed their nest. It is even a matter of indifference if any eggs have been laid therein as this bird lays in addition and presumably hatches the lot. Mr. H. R. Elvery on the Richmond River told me he once took eight eggs out of a nest of which two belonged to *Sericornis lathamii*, the original owner of the nest, and six of this species but these consisted of two distinct clutches of three each so that it appeared to be a case of the biter itself being bitten by another of the same species. Besides seizing newly-made nests of the larger species, this species frequently refurnishes and uses old nests which hang in the scrubs for several years, a common sight along most of the creeks and watercourses."

Up to the time I prepared my "Reference List" this species had not been critically examined, but I then easily noted three subspecies which I named as follows:

Sericornis magnirostris magnirostris (Gould).

New South Wales.

Sericornis magnirostris viridior Mathews.

"Differs from *S. m. magnirostris* in being greenish above and almost uniformly green below, but especially greenish on the throat. Cairns, Queensland."

North Queensland.

Sericornis magnirostris howei Mathews.

"Differs from *S. m. magnirostris* in its browner upper-surface, while the throat is buffish and the abdomen and flanks darker than in the typical form. (Gippsland) Victoria."

Victoria.

Nothing was added until just recently when I received birds from the Bunya Mounts, South Queensland, which I named:

Sericornis magnirostris bunya.

THE BIRDS OF AUSTRALIA.

“Differs from *S. m. viridior* Mathews in being distinctly paler, with the under-surface almost white (including the throat), the band over the bill is light buff.” I, at the same time described :

Sericornis magnirostris keri.

“Differs from *S. m. viridior* Mathews, in its darker colour generally and in lacking the buff band over the bill and on the throat : it is also larger. Bellenden Ker, Queensland. This form is so distinct that it is probably a species.”

Campbell and Barnard recorded a bird as *Sericornis (magnirostris) viridior* from North Queensland writing : “This large-billed Scrub-Wren was occasionally met with, especially in dense scrub where lawyer canes grow. When seen in the open for the first time the bird reminds one more of an *Acanthiza* than a *Sericornis*, but its comparatively powerful legs put it away. The male has a slightly more yellowish tone of plumage than the female.”

And if the genus *Megathiza* be used, the names will be

Megathiza magnirostris.

Megathiza magnirostris magnirostris.

Megathiza magnirostris viridior.

Megathiza magnirostris howei.

Megathiza magnirostris bunya.

Megathiza magnirostris keri.



H. Grönvold del

Witherby & Co

SERICORNIS FRONTALIS
(SCRUB-WREN)

SERICORNIS HERBERTONI
(HERBERTON SCRUB-WREN)
(Lower Right Fig.)

SERICORNIS FRONTALIS.

SCRUB-WREN.

(PLATE 455, 2 middle figures.)

ACANTHIZA FRONTALIS Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, Feb. 17th, 1827: No locality; here restricted to Sydney (New South Wales).

Acanthiza frontalis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 226, 1827.

Saxicola longirostris Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 200, pl. x., fig. 4 (pref. June 29th), 1830: Western Port, Victoria.

Sericornis frontalis Gould, Synops. Birds Austr., pt. iv., pl. 58, 1838 (April); *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 133, Dec. 1838; *id.*, Birds Austr., pt. xxi. (Vol. III., pl. 49), Dec. 1st, 1845; *id.*, Handb. Birds Austr., Vol. I., p. 359, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 303, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 26, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 245, 1901; H. E. Hill, Emu, Vol. II., p. 163, 1903; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 299, 1904; Mathews, Handl. Birds Austral., p. 76, 1908; A. G. Campbell, Emu, Vol. X., p. 35, 1910; Ingle, *ib.*, p. 123; Cleland, *ib.*, Vol. XI., p. 86, 1911 (Food); S. A. White, *ib.*, Vol. XIV., p. 141, 1915; Barrett, *ib.*, Vol. XV., p. 190, 1916; Le Souëf and Macpherson, *ib.*, Vol. XX., p. 89, 1920.

Sericornis parvulus Gould, Synops. Birds Austr., pt. iv., pl. 58, April 1st 1838: New South Wales; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 134, Dec. 1838.

Sericornis parvula parvula Mathews, Nov. Zool., Vol. XVIII., p. 354, 1912.

Sericornis parvula harterti Mathews, *ib.*, Jan. 31st, 1912: Cape Otway, Victoria; *id.*, Austral Av. Rec., Vol. I., p. 59, 1912.

Sericornis parvula rosinae Mathews, *ib.*: Mt. Lofty, South Australia; *id.*, Austral Av. Rec., Vol. I., p. 44, 1912 (nest and eggs).

Sericornis longirostris longirostris Mathews, List Birds Austr., p. 220, 1913.

Sericornis longirostris harterti Mathews, *ib.*, p. 221; Belcher, Birds Geelong, p. 282, 1914.

Sericornis longirostris rosinae Mathews, List Birds Austr., p. 221, 1913.

Sericornis longirostris parvulus Mathews, *ib.*

Sericornis frontalis frontalis Mathews, Austral Av. Rec., Vol. II., p. 98, 1914.

Sericornis frontalis longirostris Mathews, *ib.*

THE BIRDS OF AUSTRALIA.

Sericornis frontalis harterti Mathews, *ib.*

Sericornis frontalis rosinae Mathews, *ib.*

Sericornis longirostris wyldei S. A. White, South Austr. Ornith., Vol. II., p. 169, July 1916 :
Coorong, South Australia.

DISTRIBUTION. Eastern Australia (exactly unknown); Coastal South Queensland, New South Wales, Victoria and South Australia.

Adult male. Crown of head, sides of face, sides of neck, hind-neck, upper-back, and upper wing-coverts dusky brown; bastard-wing and greater coverts tipped with white; primary-coverts blackish; inner webs of flight-quills dark brown edged with white; lower back, rump, and upper tail-coverts rust-brown; tail dark brown; lores and space below the eye blackish; a white supraloral streak which extends to above the eye; throat white streaked with blackish; breast and abdomen pale sulphur-yellow; sides of body, thighs and under tail-coverts smoke-brown; axillaries and under wing-coverts pale buff; under-surface of flight-quills dark brown with pale edges; lower aspect of tail similar with whitish shafts. Eyes cream, bill horn, feet fleshy. Total length 124 mm.; culmen 11, wing 57, tail 46, tarsus 23. Figured. Collected at Selby, Victoria, on the 15th of May, 1915. (right-hand figure.)

Adult female from same locality has the lores brown.

Adult female. General colour of the upper-surface dark smoke-brown, inclining to dark chestnut-brown on the upper tail-coverts and tail; bastard-wing blackish fringed with white at the tips of the feathers like some of the greater coverts; primary-coverts uniform blackish; inner webs of flight-quills dark brown; sides of face dusky brown, darker in front of the eye and speckled with white on the base of the forehead, lores and above and below the eye; chin and throat white more or less speckled with blackish; breast and abdomen ochreous-yellow; sides of body, thighs, and under tail-coverts pale smoke-brown; axillaries, under wing-coverts, and fringes of quills below greyish-buff, remainder of quill-lining dark hair-brown; lower aspect of tail also dark hair-brown. Eyes whitish, bill very dark horn, feet brown. Total length 130 mm.; culmen 10, wing 61, tail 48, tarsus 24. Figured. Collected at Cape Otway, Victoria, and is the type of *S. f. harterti*. (lower left-hand figure.)

Immature male. General colour of the upper-surface smoke-brown on the top of the head and hind-neck becoming chocolate-brown on the back, wings, and tail; bastard-wing and some of the greater upper wing-coverts margined with white at the tips of the feathers; primary coverts uniform blackish; inner webs of flight-quills blackish-brown, slightly paler on the inner edges; sides of face greyish-brown; base of lores and eyelids greyish-white; a dusky-brown spot in front of the eye; fore-part of cheeks and chin whitish with blackish hair-like tips to the feathers; an indicated line of white on each side of the throat; middle of throat dusky-grey intermixed with white; breast and abdomen pale sulphur-yellow; sides of body, thighs, and under tail-coverts smoke-brown; axillaries and under wing-coverts greyish-white; under-surface of flight-quills hair-brown; lower aspect of tail bronze-brown with pale shaft lines. Bill brown, eyes grey, feet fleshy. Collected at Selby, Victoria, on the 1st of February, 1914.

Male juvenile. General colour of the upper-surface smoke-brown, including the crown of the head, back, wings and tail; bastard-wing blackish-brown fringed with white at the tips of the feathers; primary-coverts and inner-webs of flight-quills blackish-brown; basal portion of tail inclining to blackish-brown; sides of face similar to the top of the head; base of lores and feathers above the eye whitish; lower cheeks and throat greyish-white; breast, sides of body, thighs, and under tail-coverts smoke-

SCRUB-WREN.

brown ; under wing-coverts buffy-white ; under-surface of flight-quills and lower aspect of tail hair-brown. Eyes and feet brown, bill dark brown. Collected at Mornington, Victoria, on the 17th of September, 1909.

Nest. Domed, with side entrance. Loosely composed of bark, leaves, etc., and lined with feathers or other soft materials. Outside measurements about 6 inches wide by 8 deep.

Eggs. Clutch three. Whitish stone or grey with a dark zone of purplish-brown at the larger end. 20-22 mm. by 15-16.

Breeding-season. July to December.

VIGORS and Horsfield described this species without any remark whatever, even omitting any locality.

When Gould proposed the new genus *Sericornis* for Vigors and Horsfield's species he also added *Sericornis parvulus*, which he later regarded as synonymous. His observations read : " This little bird inhabits the brushes, and those humid situations which are clothed with thick underwood, such as the sides of creeks, gullies, etc. The locality in which it is most abundant is the south-eastern part of Australia, where it is very numerous in all the dense forests which stretch along the coast between Sydney and Moreton Bay ; and I believe I may safely state that its range does not extend westward of the 134th degree of East longitude, beyond which a nearly allied species is found ; the species, therefore, inosculate about Spencer's and St. Vincent's Gulfs, in South Australia. Like the other members of the genus, this bird generally hops about the bottoms of the brushes, selecting in preference the most humid parts, where rotten wood and moss-covered stones afford some peculiar species of insect food, upon which it is destined to live. The present is one of the smallest species of its form yet discovered, and was always a favourite with me ; for in the inmost recesses of the forest the presence of this little bird, hopping about from stone to stone in search of its insect food, now and then broke the monotony of the scene with its inward warbling strain."

Soon after Vigors and Horsfield had described their *Acanthiza frontalis*, the French voyageurs Quoy and Gaimard figured and described from Western Port, Victoria, a bird under the name *Saxicola longirostris*. Whatever the reason, it was not recognised as this bird by Gould or G. R. Gray, although the illustration is quite a good one, and since I reinstated Quoy and Gaimard's name there has been no question of its association with this species.

Soon afterwards Gould named a number of species of this genus which have caused complications in this connection as will be seen.

Captain S. A. White has sent me the following note : "*S. f. longirostris*. This bird is very plentiful in many parts of Victoria I have visited and they are to be met with on the edges of the scrubs in the early mornings and evenings.

THE BIRDS OF AUSTRALIA.

Their ordinary note is a short 'cheep, cheep,' but they also have a very sweet but short song. *S. f. rosinae*. I was under the impression that this was a new species for some time but it was not until 1912 that I set out in search for it. This is now a common bird but keeps to the deep damp gullies. It is very silent, or so I found it, but it may be in the early mornings they utter the sweet song so common to the members of this genus. The nest resembles that of other *Sericornis* in shape, composed of dry grass and invariably placed in a mass of dry bracken fern in the deep dark gullies in the Mount Lofty Ranges."

At Mallacoota, Victoria, Captain White found it "Very common in nearly all the damp gullies. They keep to the thick undergrowth during the middle of the day, but in the morning and evening they were seen hopping about on the short grass in search of insects. At the least sound they would dart into cover."

The confusion between *S. frontalis* and *osculans* in Victoria and South Australia has made the determination of the field notes published somewhat difficult. Thus H. E. Hill in his Notes from Geelong and Otway Districts has written: "*S. osculans* and *S. frontalis*. Both of these birds are very abundant in the salt-bush scrub wherever it is found, and throughout the forest they are thick in the undergrowth if it is at all dense. Have seen the nests of *S. frontalis* only, although the other species no doubt breeds here too."

Mr. A. G. Campbell to whom I applied for accurate information on the subject of the Victorian forms wrote me fully as follows: "One of the very commonest birds of the Victorian bush is *Sericornis*. From shore line to the tops of the highest mountains wherever there is any semblance of timber or brake of scrub, birds will be found. But the particular variety has long been a matter of question. Generally reference is made to *S. frontalis* as the commonest bird, but collections of skins I have made from many parts of the State point out *S. osculans* as being far more plentiful. In fact my opinion, based on observations, is that *S. frontalis* is rare. Gould in his *Handbook* sets down the difference in the two species as accurately as can be. He stated that an obscure dark subterminal band on the tail of *S. osculans* was the distinguishing feature of that species. Possibly observers have not given the full significance to the word 'obscure' for a cursory examination will often fail to show the band. If the feathers of the tail are widely separated the faint dark band can be traced on the inner webs of the outer feathers. There is not a continuous band clearly defined as in *S. maculata*, but the character holds good however. Examining Victorian skins with this in view it is found that *Sericornis* from most localities show the obscure subterminal band in the tail, while tails without such markings are few and far between. From my collection I have no hesitation in concluding that the common *Sericornis* is *S. osculans*; this

SCRUB-WREN.

species inhabiting the coastal tea-tree (*Leptospermum*) belts which fringe many parts of the coast, the freshwater tea-tree (*Melaleuca*) brakes which cover thousands of acres of swampy ground through Gippsland and all the scrub and lightly timbered lands that clothe Mornington Peninsula, many parts of Gippsland and in fact most parts of the State, the westward limits being the Pyrenees and the Grampians. The habitat of *S. frontalis* on the other hand seems to be restricted to the deep secluded gullies of the ranges—Dandenong and Healesville Ranges, South Gippsland and Otway Ranges and the Alps. No specimens have come under my notice from any but heavily timbered and mountainous country.”

Mr. E. J. Christian under the name *S. frontalis* has written : “ This is very common in the thick tea-tree which borders the shores of Port Phillip Bay. It is found in the thickest and darkest clumps and does extremely good work in parts where no other birds seems to go. Often I have had to crawl on my hands and knees to get to the centre of a dark clump of trees to see a nest. It, of course, does not always stay in the thick clumps and is found in much higher timbered places and in low bushes. It has a loudish clear note and if disturbed, especially when nesting, keeps up an incessant noise which often betrays the owner’s nest. As a rule they are very early breeders and in 1905 I found them building on June 20th.”

Mr. F. E. Howe has written : “ Is confined to the thick scrubs that border the creeks. Their call is a rather pleasant one, but if a nest is close by is changed to a harsh scolding note. The breeding-season extends from July to December during what time two broods are hatched. At sixteen days old one youngster had the gape creamy white ; mouth, yellow ; irides, black.”

Mr. A. H. E. Mattingley has also written : “ Young born naked and blind, colour of skin fleshy with dark tinge. The parents feed them every few minutes. The parents keep up harsh notes of danger if any enemy is near their nest, which I have known them to build in saplings leaning against a tree in a heap ; also in a potato sack hanging up in a tree.”

Under the name *S. frontalis* Mr. J. W. Mellor has written me : “ Plentiful in the scrub country of Victoria and New South Wales. I have taken it at Tumbulgum on the Tweed River, and also in the Dandenong Ranges just out of Melbourne. This is its northern and southern limit I believe, but think it goes westward some distance from the eastern coast and although I have not seen the bird personally in South Australia I believe it is to be found in the south-eastern district towards Mount Gambier and the Victorian border.”

Writing of the Birds of Sydney Le Souëf and Macpherson have recorded : “ The White-browed Scrub-Wren (*Sericornis frontalis*) is found in many little gullies and secluded pockets of thick vegetation in the parks round the harbour.

THE BIRDS OF AUSTRALIA.

When nesting it always gives away the situation by noisy protests when anyone comes near, but at other times it is full of curiosity and will come to within a few feet of the intruder."

This suggests that the type locality suggested for Vigors and Horsfield's specimen, viz., Sydney, New South Wales, may be confirmed by a small series showing growth stages as hereafter noted.

The type of *Acanthiza frontalis* is now preserved in the British Museum and is an immature specimen, now in very poor condition. When I compiled my "Reference List" I rejected it as applicable to the present species, but as it was a form of the present group, tentatively applied it to Legge's form "*gularis*." I was induced to this course as Vigors and Horsfield had some birds from the Kent Group and I had no bird exactly agreeing with the type specimen. Since then I have received as a present, the type of *gularis* and found it was referable to the *humilis* series and not to the *frontalis* form with which alone Legge had compared it. I therefore reinstated *frontalis* for the group previously associated with it and have designated "New South Wales (Sydney)" as the type locality. I herewith give my varied attempts to discover the truth about this species, but am confident that the results are not final as these little birds vary constantly in every locality. The authorities at the British Museum have been no less puzzled than Gould was, and Gould's specimens preserved in that collection show his confusion whenever he received specimens; these have been labelled two or three times differently. Thus specimens from Mount Gambier were first labelled "new species near *humilis*" then *frontalis*, and then ? *osculans* and left at that. Most of the fairly typical *osculans* were labelled *frontalis* and sometimes this was not altered while the Cape York birds he called *minimus* were at first called *frontalis* and then *laevigaster* so that notwithstanding the clearness of his early published accounts nearly every additional form perplexed him. In the same way the British Museum authorities labelled the bird first "*osculans*" then "*frontalis*" and vice versa, and now simply put them away in the cabinets as "*Sericornis* sp. undetermined." Such indecision on the part of experts is my apology for my own attempts. I might add that at the present time the only birds included with the type of *frontalis* are Cape York birds, all the others being called *osculans* and *laevigaster*.

When I prepared my "Reference List" I concluded that Gould's species *osculans* was a form of *maculata*, and that *frontalis* was not the correct name for this species. I therefore used Gould's *parvulus* as the specific name and admitted six subspecies, viz. :—

Sericornis parvula parvula Gould.

New South Wales, Victoria.

Sericornis parvula harterti Mathews.

SCRUB-WREN.

“Much richer in coloration above and below than the typical form, and also larger. Wing, ♀ 61 mm. : typical av. 54 mm.”

Cape Otway, Victoria.

Sericornis parvula rosinae Mathews.

“Differs from *S. p. harterti* in having the throat striated and the head grey. Mount Lofty, South Australia.”

South Australia.

Sericornis parvula minima Gould.

North Queensland.

Sericornis parvula laevigaster Gould.

Mid-Queensland.

Sericornis parvula herbertoni Mathews.

“Differs from *S. p. laevigaster* in being browner above, and in having the tips of the tail-feathers white. Herberton.”

North Queensland, Herberton District.

The following year I found that *Saxicola longirostris* of Quoy and Gaimard was applicable to this species and was the oldest name as I had not at that time received Legge's *gularis*. I allowed that the Gippsland and Victoria bird was separable from the New South Wales form and that the Cape Otway bird was still different. I however considered that my *herbertoni* was the same as Gould's *laevigaster* and still ranged six subspecies with the names thus :

Sericornis longirostris longirostris (Quoy & Gaimard).

Victoria.

Sericornis longirostris harterti Mathews.

Cape Otway District, Victoria.

Sericornis longirostris rosinae Mathews.

South Australia.

Sericornis longirostris parvulus Gould.

New South Wales.

Sericornis longirostris laevigaster Gould.

North Queensland.

Sericornis longirostris minimus Gould.

Cape York District, North Queensland.

When I reinstated *frontalis* as the species name, the names became :

Sericornis frontalis frontalis (Vigors and Horsfield).

Sericornis frontalis longirostris (Quoy and Gaimard).

Sericornis frontalis harterti Mathews.

Sericornis frontalis rosinae Mathews.

Sericornis frontalis laevigaster Gould.

Sericornis frontalis minimus Gould.

and Captain White added *Sericornis frontalis wyldei* in 1916.

THE BIRDS OF AUSTRALIA.

I have now re-considered the whole of the available material and find one of the chief stumbling blocks to the above arrangement is the Cape York *minimus* and the *lævigaster* forms. Campbell has pointed out that the eggs of *minimus* differ appreciably and apparently in a specific manner. The acceptance of this would necessitate the recognition of at least three species :

<i>Sericornis minimus</i>	Cape York.
<i>Sericornis lævigaster</i>	Rest of Queensland and Tweed River District, New South Wales.
<i>Sericornis frontalis</i>	Coastal New South Wales and East Victoria.

Of the last named the above subspecies can be admitted, taking away *lævigaster* and *minimus*, making a total of five.

SERICORNIS LÆVIGASTER.

BUFF-BREASTED SCRUB-WREN.

(PLATE 455, bottom right-hand figure.)*

SERICORNIS LÆVIGASTER Gould, Proc. Zool. Soc. (London) 1847, p. 3, March 29th : Dawson Ranges, near Gulf of Carpentaria, Queensland.

Sericornis lævigaster† Gould, Proc. Zool. Soc. (London), 1847, p. 3; *id.*, Birds Austr., pt. xxvii. (Vol. III., pl. 50), June 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 360, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 307, 1883; Ramsay, Tab. List Austr. Birds, p. 9, 1888; Hall, Key Birds Austr., p. 26, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 249, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 300, 1904; Mathews, Handl. Birds Austr., p. 76, 1908; A. G. Campbell, Emu, Vol. X., p. 36, 1910; A. J. Campbell and Barnard, *ib.*, Vol. XVII., p. 27, 1917.

Sericornis parvula lævigaster Mathews, Nov. Zool., Vol. XVIII., p. 355, March 31st, 1912.

Sericornis parvula herbertoni Mathews, *ib.*: Herberton, North Queensland.

Sericornis longirostris lævigaster Mathews, List Birds Austr., p. 221, 1913.

Sericornis frontalis lævigaster Mathews, Austral Av. Rec., Vol. II., p. 98, 1914.

DISTRIBUTION. North Queensland (Herberton) to Northern New South Wales.

Adult female. General colour of the upper-surface ochreous-brown including the top of the head, sides of the face, sides of neck, hind-neck, back, wings, and tail; some of the median upper wing-coverts blackish tipped with white like the bastard-wing; primary-coverts uniform black; inner webs of flight-quills blackish edged with whitish; outer edge of wing greyish-white; lateral tail-feathers broadly banded with black on the apical portion and tipped with white; a white supraloral streak which extends over the eye and along the sides of the crown; the feathers in front of and below the eye brownish; chin and throat greyish-white with dark centres to some of the feathers; breast, abdomen, sides of body, and under tail-coverts yellowish-white with dark bases to the last; axillaries and lesser under wing-coverts yellowish-white; greater series of under wing-coverts and under-surface of flight-quills dark brown with slightly paler margins to the latter; lower aspect of tail bronze-brown with a broad blackish sub-apical band and greyish-white tips to the feathers. Eyes pale yellow, bill dark horn; feet flesh. Total length 117 mm.; culmen 11, wing 62, tail 47, tarsus 21. Figured. Collected at Herberton, North Queensland, on the 28th of November, 1910, and is the type of *Sericornis herbertoni*.

Adult male has the toes blackish.

* The Plate is lettered *Sericornis herbertoni*.

† Also spelt *levigaster*.

THE BIRDS OF AUSTRALIA.

Nest. "Dome-shaped, situated near the ground in thick scrub ; composed chiefly of dried grasses, and warmly lined with feathers. External diameter top to bottom $5\frac{1}{2}$ inches by 4 inches across." (H. L. White.)

Eggs. "Clutch two, oval in shape, surface of shell fine and rather glossy, ground-colour pale brownish, capped at the larger end with dark purplish-brown markings. 19 mm. by 14." (*ib.*)

Breeding-season. "November to December." (*ib.*)

GOULD'S account of this bird is as follows : "This species, though nearly allied to the *S. maculatus*, is distinguished by the entire absence of spots on the throat and chest, and by having the tail-feathers largely tipped with white. The acquisition of a male and female is part of the results of Dr. Leichardt's overland expedition from Moreton Bay to Port Essington, an example of each sex having been killed by Gilbert on the 30th of November, 1844 ; but there is no information whatever respecting them in his 'Journal.'"

This form appears to have been neglected ever since, but recently Messrs. Campbell and Barnard wrote : "This northern Scrub-Wren was only seen on the table-land, chiefly along the Kirrama Creek, where families fossicked for food, after the fashion of *frontalis*."

From the Tweed River is a bird which is labelled *lævigaster* which has a broad black bar across the tail but with *no* white tips. This can be called :
Sericornis lævigaster tweedi subsp. nov.

One of Gould's birds, a typical *lævigaster* from "New South Wales" (=Queensland as this was before the northern State was partitioned off) is the Queensland bird, but was labelled *frontalis* by Gould.

The forms admitted are :

Sericornis lævigaster lævigaster Gould.

Sericornis lævigaster herbertoni Mathews.

"Differs from *S. l. lævigaster* in being browner above."

Sericornis lævigaster tweedi Mathews.

"Differs from *S. l. lævigaster* in the absence of white tips to the tail-feathers."

SERICORNIS MINIMUS.

LITTLE SCRUB-WREN.

(PLATE 455, top figure.)

SERICORNIS MINIMUS Gould, Birds New Guinea, pt. 1. (Vol. III., pl. 7), Dec. 1st, 1875 :
Cape York.

Sericornis minimus Gould, Birds New Guinea, pt. 1. (Vol. III., pl. 7), Dec. 1st, 1875 :
Cape York, Queensland ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ;
id., Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 26, 1899 ; North,
Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 300, 1904 ; Mathews, Handl. Birds Austral.,
p. 76, 1908 ; A. G. Campbell, Emu, Vol. X., p. 37, 1910 ; Barnard, *ib.*, Vol. XI., p. 27,
1911 ; A. J. Campbell, *ib.*, Vol. XIII., p. 67, 1913 ; Macgillivray, *ib.*, p. 171, 1914 ;
id., *ib.*, Vol. XVII., p. 201, 1918.

Sericornis brunneopygius Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 53, Feb. 1876 : Cape
York, Queensland.

Sericornis parvula minima Mathews, Nov. Zool., Vol. XVIII., p. 354, 1912.

Sericornis longirostris minimus Mathews, List Birds Austr., p. 221, 1913.

Sericornis frontalis minimus Mathews, Austral Av. Rec., Vol. II., p. 98, 1914.

DISTRIBUTION. Cape York Peninsula, North Queensland.

Adult male. Crown of head dark fulvous-brown ; back, scapulars, and upper wing-coverts
olive ; bastard-wing and primary-coverts black tipped with white ; outer aspect
of flight-quills olive-brown, inner webs dark brown with pale edges ; upper tail-
coverts and tail rust-brown ; sides of face like the top of the head ; base of forehead,
lores, and fore-part of eye-ring blackish ; remainder of eye-ring and loreal streak,
which extends over the eye white ; chin, cheeks, and throat white with a few dark
specklings on the last ; breast, abdomen, lower flanks, and under tail-coverts whitish
sulphur-yellow ; sides of body somewhat darker ; axillaries and under wing-coverts
whitish ; under-surface of flight-quills hair-brown with pale buff edges ; lower
aspect of tail similar to its upper-surface but paler. Eyes crimson ; bill pink
with culmen brown ; feet pink. Total length 101 mm. ; culmen 11, wing 58,
tail 40, tarsus 20. Figured. Collected at Piara Scrubs, Cape York, North Queens-
land, on the 22nd of March, 1913. (Top figure.)

Adult female from same locality has lores brown.

Immature female. General colour of the upper-surface ochreous-brown including the top
of the head, entire back, wings, and tail ; bastard-wing and greater upper wing-

THE BIRDS OF AUSTRALIA.

coverts blackish-brown margined with white; primary coverts uniform blackish-brown; inner webs of flight-quills hair-brown with pale edges towards the base; sides of the face and lores rust-colour; a pale supraloral line which extends to above the eye; throat whitish; breast, abdomen, sides of body, under tail-coverts, axillaries and under wing-coverts yellowish-white more or less tinged with rust-colour; thighs uniform rust-colour; under-surface of flight-quills dark hair-brown with pale edges; lower aspect of tail ochreous-brown. Bill black, eyes brownish-grey, legs and feet brownish-white. Collected at Watson's River, North Queensland, on the 4th of July, 1914.

Immature. General colour of the upper-surface olive-brown including the head, back, wings, and tail; bastard-wing and some of the greater coverts black tipped with white; primary-coverts uniform black; inner webs of flight-quills blackish-brown; rectal bristles black; a spot at the base of the bill, behind each nostril, and eyelids white; sides of face similar to the crown of the head but rather paler; chin and throat cream-white with minute dark fringes to the feathers; breast, abdomen, sides of body, and under tail-coverts very pale lemon-yellow; thighs pale rust-colour; under wing-coverts cream-white, slightly tinged with lemon-yellow; flight-quills below hair-brown with whitish margins; lower aspect of tail similar to its upper-surface. Eyes grey, feet pink, bill brown. Collected at Cape York, on the 12th of July, 1913.

Juvenile. General colour of the upper-surface rust-brown including the head, back, wings and tail; upper tail-coverts rust-colour; bastard-wing and greater upper wing-coverts black margined with white; primary coverts uniform black; inner webs of flight-quills dark brown with pale edges; a supraloral streak, eyebrow, and eyelid whitish; ear-coverts like the crown of the head; under-surface white slightly tinged with yellow; thighs pale rust-colour; under wing-coverts and inner margins of flight-quills below pale buff; quill lining dark brown; lower aspect of tail similar to its upper-surface. Bill and eyes black, feet pink. Collected at Cape York, North Queensland, on the 4th of April, 1913.

Nest. "Dome-shaped, situated a few feet from the ground in a scrubby bush. Composed of leaves and rootlets and lined with fine tendrils and a few feathers. The entrance is very small, being $\frac{3}{4}$ of an inch in diameter. The structure measures: internal depth, 3 inches; external, $4\frac{1}{2}$ inches; internal breadth, $1\frac{3}{4}$ inches; external, 3 inches." (H. L. White.)

Eggs. "Clutch, three, oval in shape, and of a faint reddish-brown, with light brown fleecy markings on the larger end, where they form a zone near the apex. There are no markings on the smaller end. 17-18 mm. by 14." (*ib.*)

Breeding-season. "October to December." (*ib.*)

WRITING of this bird, which Gould described, he says: "The nearest allies of this pretty little bird are the *Sericornis frontalis* of the eastern brushes of New South Wales and the *Sericornis lævigaster* of the northern portion of Australia. From the former it differs in the markings of the face and eye stripes, from the latter in the total absence of any marks on the tips of the tail-feathers. Nothing has yet been recorded respecting the habits and economy of this species; but judging from the sleek and silky texture of its feathers, it is an inhabitant of humid sterile places, among grasses and mossy stones, in the wilder portion of the forest."

LITTLE SCRUB-WREN.

Very little has been recorded about this species. The bird figured and described differs from Gould's type in having the back olive and not brown, and may be called

Sericornis minimus yorkei subsp. nov.

Writing about eggs, A. J. Campbell observed: "Some sets of the various *Sericornes* are very similar to each other, but whether or not *Sericornis minimus* is merely a northern form of *S. frontalis*, its eggs differ considerably from those of the southern bird. The lengthened and acorn-like eggs of *S. citreigularis* are exceedingly singular."

Macgillivray has recorded: "The Little Scrub-Wren (*Sericornis minimus*) is numerous in the Cape York scrubs, where they fossick for food amongst the dead leaves and debris on the ground or amongst the masses of fallen vines and trees. They are easily approached. Average length of male, about $4\frac{1}{2}$ inches, irides deep orange-scarlet; upper mandible pale brown, lower brownish-white. Stomach contents, insects."

Order PASSERIFORMES.

No. 548.

Family SYLVIIDÆ.

SERICORNIS MACULATUS.

SPOTTED SCRUB-WREN.

(PLATE 456.)

SERICORNIS MACULATUS Gould, Proc. Zool. Soc. (Lond.), 1847, p. 2, March 29th : (Albany), West Australia.

Sericornis maculatus Gould, Proc. Zool. Soc. (Lond.), 1847, p. 2 ; *id.*, Birds Austr., pt. xxvii. (Vol. III., pl. 51), June 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 361, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 307, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 26, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 249, 1901 ; Milligan, Emu, Vol. III., p. 17, 1903 (W.A.) ; Carter, *id.*, *ib.*, p. 40, (W.A.) ; Milligan, *ib.*, Vol. IV., p. 9, 1904 (W.A.) ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 304, 1904 ; Lawson, Emu, Vol. IV., p. 130, 1905 (W.A.) ; Ashby, *ib.*, Vol. V., p. 27, 1905 (Kangaroo Island) ; A. G. Campbell, *id.*, *ib.*, p. 142 (Kangaroo Island) ; Mathews, Handl. Birds Austral., p. 77, 1908 ; Gibson, Emu, Vol. VIII., p. 66, 1908 (W.A.) ; A. G. Campbell, *ib.*, Vol. X., p. 36, 1910 ; Cleland, *ib.*, Vol. XI., p. 87, 1911 (Food) ; Whitlock, *id.*, *ib.*, p. 241, 1912 (W.A.) ; S. A. White, *ib.*, Vol. XII., pp. 3, 7, 8, 1912 ; *id.*, *ib.*, p. 184, 1913 ; Orton, *ib.*, Vol. XVIII., p. 101, 1918 ; Campbell, *ib.*, p. 259, 1919 ; S. A. White, Emu, Vol. XX., p. 127, 1921 ; Ashby, *id.*, *ib.*, p. 134 ; Alexander, *id.*, *ib.*, p. 166.

Sericornis osculans Gould, Proc. Zool. Soc. (Lond.), 1847, p. 2, March 29th : South Australia ; *id.*, Birds Austr., pt. xxvii. (Vol. III., pl. 48), June 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 358, 1865 ; Ramsay, Proc. Linn. Soc., N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 309, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 26, 1899 ; Campbell, Nests, Eggs Austr. Birds, Vol. I., p. 250, 1901 ; H. E. Hill, Emu, Vol. II., p. 163, 1903 ; A. G. Campbell, *ib.*, Vol. VI., p. 120, 1907 ; Batey, *ib.*, Vol. VII., p. 7, 1901 ; A. G. Campbell, *ib.*, Vol. X., p. 35, 1910.

Sericornis balstoni Grant, Bull. Brit. Ornith. Club, Vol. XX III., p. 72, May 7th, 1909 : Bernier Island, West Australia ; Ibis, 1909, p. 677, pl. ix., f. 1.

Sericornis maculata maculata Mathews, Nov. Zool., Vol. XVIII., p. 355, 1912 ; *id.*, List Birds Austr., p. 222, 1913.



H. Grönvold. del

Witherby & Co

SERICORNIS MACULATUS.
(SPOTTED SCRUB-WREN).



SPOTTED SCRUB-WREN.

- Sericornis maculata warreni* Mathews, Nov. Zool., Vol. XVIII., p. 356, Jan. 31st, 1912 : Warren River, South-west Australia ; *id.*, List Birds Austr., p. 222, 1913 ; Carter, Ibis, 1921, p. 60.
- Sericornis maculata osculans* Mathews, Nov. Zool., Vol. XVIII., p. 356, 1912 ; *id.*, List Birds Austr., p. 222, 1913 ; S. A. White, Emu, Vol. XVI., p. 75, 1916.
- Sericornis maculata mellori* Mathews, Nov. Zool., Vol. XVIII., p. 356, Jan. 31st, 1912 : Eyre's Peninsula, South Australia ; *id.*, List Birds Austr., p. 222, 1913.
- Sericornis maculata ashbyi* Mathews, Nov. Zool., Vol. XVIII., p. 356, Jan. 31st, 1912 : Kangaroo Island ; *id.*, List Birds Austr., p. 222, 1913.
- Sericornis maculata balstoni* Mathews, Nov. Zool., Vol. XVIII., p. 356, 1912 ; *id.*, List Birds Austr., p. 222, 1913.
- Sericornis halmaturina* Campbell, Emu, Vol. XI., pt. 4, p. 246, April 1st, 1912 : Kangaroo Island.
- Sericornis maculatus rymilli* S. A. White, Emu, Vol. XVI., pt. 1, p. 14, July 1, 1916 : Wedge Island, South Australia.
- Sericornis maculatus hartogi* Carter, Bull. Brit. Ornith. Club, Vol. XXXVII., p. 6, Oct. 24th, 1916 : Dirk Hartog's Island, West Australia ; *id.*, Ibis, 1917, p. 589 ; Whitlock, Emu, Vol. XX., p. 180, 1921.
- Sericornis maculatus geraldtonensis* Mellor, South Austr. Ornithol., Vol. VI., pt. 2, p. 43, April 1st, 1921 : Geraldton District, Western Australia.
- Sericornis maculatus houtmanensis* Zietz, *ib.*, p. 44 : Houtman's Abrolhos, South-west Australia.

DISTRIBUTION. South Australia ; West Australia.

Adult male. General colour of the upper-parts mouse-brown, including the tops of the head, ear-coverts, back, wings, and tail ; terminal portions of the bastard-wing, median, and greater upper wing-coverts black margined with white ; primary-coverts uniform black ; inner web of flight-quills dark brown ; outer tail-feathers broadly banded with black sub-apically and fringed with white at the tips ; base of forehead and fore part of face black ; a supraloral streak which extends over the eye, and a portion of the eyelids white ; throat, breast, abdomen, and under tail-coverts pale yellow with blackish centres, or blackish bases to the feathers ; flanks and thighs dusky grey ; under wing-coverts greyish-white ; under-surface of flight-quills hair-brown with pale edges ; lower aspect of tail similar in pattern to its upper-surface but paler in colour. Bill horn, with lighter base of lower mandible, feet dark. Total length 124 mm. ; culmen 11, wing 56, tail 49, tarsus 23. Figured. Collected at Cambrutha Creek, Clive Ranges, Central Eyre Peninsula, South Australia, in June 1911, and is the type of *S. m. mellori*. (Bottom figure.)

Adult female similar to the adult male, but with the lores brown, not black.

Adult male. General colour above dark chocolate-brown, including the crown of the head, sides of the face, back, wings and tail ; outer median and greater upper wing-coverts blackish, tipped with white like the bastard-wing ; primary-coverts uniform black ; outer primaries grey along the outer webs ; inner webs of flight-quills dark hair-brown with whitish margins ; outer tail-feathers banded with black subterminally and edged with greyish-white at the tips ; base of forehead, lores, and fore-part of eye-ring black ; a white supraloral streak which extends above the eye and includes the eye-ring ; chin and a moustacial streak whitish ; throat and fore-neck greyish-

THE BIRDS OF AUSTRALIA.

white with blackish pear-shaped centres to the feathers; abdomen pale yellow; sides of body and thighs ochreous-brown; under tail-coverts similar with whitish tips; axillaries, under wing-coverts, and inner edges of quills below buffy-white; remainder of quill-lining dark hair-brown; lower aspect of tail greyish-brown with a dark subterminal band and greyish-white edgings to the tips of the lateral feathers, shafts whitish. Total length 115 mm.; culmen 10, wing 55, tail 47, tarsus 21. Figured. Collected at Tor Bay, West Australia, on the 22nd of April, 1908. (Right-hand figure.)

Adult female. General colour of the upper-surface olive-brown, including the top of the head, sides of face, entire back, wings and tail; bastard-wing blackish fringed with white at the tip like some of the greater upper wing-coverts; primary-coverts uniform black; inner webs of flight-quills blackish-brown; tail banded subterminally with black and tipped with greyish-white; a loreal streak of black and white feathers, which extend to above the eye; throat and fore-neck yellowish-white with blackish centres to the feathers; breast and abdomen pale lemon-yellow; flanks and thighs smoke-brown; under tail-coverts pale brown with whitish tips; axillaries buffy-white; under-surface of flight-quills dark brown, slightly paler on the edges; lower aspect of tail similar to its upper-surface but paler. Bill horn, base paler, eyes greyish, feet neutral, tarsus horn. Total length 112 mm.; culmen 10, wing 51, tail 44, tarsus 21. Figured. Collected at Cape Howe, Western Australia, on the 23rd of November, 1910. (Top figure.)

Adult female. General colour of the upper-surface dark smoke-brown, including the top of the head, sides of the face, back, wings, and tail; outer median upper wing-coverts blackish fringed with white at the tips like the bastard-wing; primary-coverts uniform blackish; a subapical band of black on the outer tail-feathers; the feathers at the base of the fore-head speckled with whitish; chin and throat whitish with black pear-shaped markings to the feathers of the latter, becoming yellowish on the fore-neck and breast where the dark spots are more pronounced; middle of the abdomen and under tail-coverts uniform lemon-yellow with dark bases to the latter; axillaries and under wing-coverts cream-white; under-surface of flight-quills hair-brown; lower aspect of tail much paler than its upper-surface but otherwise similar. Bill purplish-horn, eyes straw-yellow, feet fleshy. Total length: 112 mm.; culmen 10, wing 52, tail 42, tarsus 21. Figured. Collected on the Warren River, South-west Australia on the 14th of February, 1910, and is the type of *S. m. warreni*. (Middle left-hand figure.)

Immature male. General colour of the upper-surface rust-brown with a tinge of grey on the top of the head; bastard-wing and greater upper wing-coverts black margined with white; primary-coverts uniform blackish-brown; flight-quills hair-brown on the inner-webs which are paler on the margins towards the base; outer webs of primaries edged with greyish; some of the outer tail-feathers have a blackish subterminal band; lores, cheeks, and ear-coverts similar to the back; a supraloral streak and line over the eye white like the eyelids; chin and sides of throat dull white; middle of throat pale grey with dark centres to the feathers; middle of breast dull white with dark shaft-lines inclining to drab grey on the sides of the breast; abdomen, dull white; sides of body, thighs, and under tail-coverts ferruginous, the last more or less white at the base; under wing-coverts and margins of flight-quills below pale buff; remainder of quill-lining dark hair-brown; lower aspect of tail greyish-brown with a dark subterminal band to some of the feathers. Collected at Red Gum Spring, West Australia, on the 8th of October, 1902.

Immature female. General colour of the upper-surface smoke-brown, including the top of the head, back, wings, and tail; greater upper wing-coverts and bastard-wing black with white margins to the tips of the feathers; primary-coverts, uniform

SPOTTED SCRUB-WREN.

black ; inner webs of flight-quills dark hair-brown ; outer webs of primary-quills drab-grey ; a slight indication of a blackish subterminal band on some of the tail-feathers, chiefly on the inner webs ; the short feathers at the base of the forehead white with blackish tips ; throat, greyish white with dark shaft-lines to the feathers ; breast and abdomen, greyish-white with pale rust-brown margins to the feathers ; sides of body, thighs, vent, and under tail-coverts uniform rust-brown ; axillaries, under wing-coverts, and inner margins of flight-quills brownish-grey ; remainder of quills below and lower aspect of tail dark hair-brown. Bill brown, eyes dull white, feet blackish-brown. Collected on Middle River, Kangaroo Island, South Australia, on the 5th of December, 1911.

Nest. Domed, with side entrance. Composed of bark, leaves, grass, etc., and lined with feathers. Outside measurements, 6 inches deep by 4 wide.

Eggs. Clutch, three. Whitish, with a zone at the larger end of purplish-brown and lavender spots, 19 mm. by 14.

Breeding-season. September to December or January.

OF great interest in connection with the recognition of subspecies are the remarks made by Gould regarding this species : "The present bird, to which I have assigned the specific term of *maculatus*, has always been a source of perplexity to me, from the circumstance of its varying considerably in its markings ; after mature consideration, however, I am induced to regard the specimens from Southern and Western Australia and the north coast as referable to one and the same species, each however possessing trivial differences by which it may be known from whence it was received. Specimens from the Houtman's Abrolhos are of a rather smaller size, of a much greyer tint on the back, and have much darker-coloured legs. I believe that the bright yellow wash on the under-surface of some individuals is characteristic of newly moulted birds ; in this species not only is the throat spotted with black, but the spotting extends over the chest and some distance down the flanks ; it has at all times the tail tipped with white, a character which serves at once to distinguish it from *S. osculans* and *S. frontalis*. Scrubby places and ravines covered with dense herbage, whether in sterile or humid situations, are its favourite resort. It has the same shy disposition and retiring habits as the other members of the genus, depending for safety rather upon its creeping, mouse-like habits than upon its powers of flight, which are indeed seldom resorted to. Its note is a harsh, grating kind of twitter, often repeated."

As a distinct species Gould described *Sericornis osculans*, writing : "Inhabits South Australia, where it frequents underwood, scrubby places, and the bottoms of dry watercourses : it is naturally shy and retiring in its habits, and evades pursuit by creeping beneath the herbage and making its exit on the other side. It is nearly allied to the *S. frontalis* and *S. humilis*, but differs from the former in having at all times numerous longitudinal blotches of black on the throat, and from the latter in these spots being much more distinct. I have seen

THE BIRDS OF AUSTRALIA.

specimens in which the yellow tint which pervades the centre of the abdomen has given place to grey or greyish-white."

Mr. Edwin Ashby's notes read: "In the mangroves of the Outer Harbour, Port Adelaide, this bird creeps about the roots like a mouse, usually without making a sound. The whole locality where the mangroves grow is at high tide covered with water, but at low tide is a sombre waste of reeking mud cut into numberless deep ditches or channels by the receding tide. The only sound to be heard is the buzzing of mosquitoes and the slight noise made by the walking of numerous small crabs or the dropping of the fruits of the mangroves. Some times the *Sericornis* creeps up high into the mangroves. In common with others of the same genus they are possessed of great curiosity and will come almost within arm's length to get a good view of the intruder. At Easter they uttered but seldom the sharp chirp common to most of the genus; possibly they would be more talkative in spring. In Kangaroo Island they frequented localities near the coast or in thick shrubs only a few feet high and at bottom of valley at Middle River in thick bushes, but a very different locality to the Mangroves of Outer Harbour. . . . A comparison was made between these birds and West Australian specimens of *maculata* with the result that the Outer Harbour birds were similar to the Kangaroo Island ones but considerably darker in all the upper parts and tail, a rich or deep vandyke brown, than the Port Lincoln specimens which were uniformly above a grey brown, much paler. The Western birds were similar above to the Port Lincoln ones but underneath strongly cream instead of white and smaller."

Mr. J. W. Mellor writes: "This is the bird generally representing the genus in South Australia. I have taken it in all parts of Kangaroo Island, also on many of the smaller islands about the southern coast. I have also noted it on Eyre Peninsula, and at the Reedbeds near Adelaide. At the former place I have taken it at the extreme southern end and at Warunda in the interior. It keeps to the ground and does good work in eating up destructive insect pests. Its nest is placed in a bush on the ground and is domed."

Mr. Tom Carter's notes read: "The Spotted Scrub-Wren occurs through the greater part of the South-west corner of West Australia, but can nowhere be called abundant, and according to my observations is more numerous in the coastal districts than it is inland. It is fairly common on the coast, at the Margaret River, and about Albany. The greatest distance inland at which any of these birds have been observed by me was on the Pallinup River, about ninety miles from the coast. On one occasion only, a pair of this species was seen at Broome Hill (Sept. 21, 1910). It is a quiet unobtrusive bird keeping well to the cover of scrub. The subspecies, Warren River Scrub-Wren, was noted by me to be fairly common in the thick scrub growing alongside the

SPOTTED SCRUB-WREN.

Warren River and its many tributary brooks, at a distance of about fifteen miles from the coast. It has a trilling alarm note."

Milligan's note about the Wongan Hills form was short: "Cannot believe to be identical with the coast bird."

Whitlock, writing about the Stirling Ranges birds, stated: "The Spotted Scrub-Wren is by no means a rare bird in the Ranges in suitable haunts; but, owing to the dense nature of the scrubs and the secretive habits of the female during the actual nesting season, the nest is a difficult one to find."

Carter described the Dirk Hartog Island Wren and wrote: "This new Scrub-Wren was the commonest bird on Dirk Hartog Island. Almost every bush of any size seemed to hold one or two, and on very windy days (which often occur in the summer months) when small birds keep in the shelter of the scrub, one has only to sit down under a bush, squeak with one's lips, and one or a pair of this species will almost invariably appear at once. They are excessively tame, and will hop about among the twigs within a foot of one's face, often uttering a scolding note like 'tchut, tchut.' At other times they have what appears to be an alarm note like 'pee-wee-wee.' What seems to be their song is a musical trilling, resembling that of the British Grasshopper Warbler. Many fledged young were seen after the end of September. Scrub-Wrens also occurred on the Peron Peninsula, but were not nearly so plentiful as on Dirk Hartog Island. Their habits and notes were the same. No Scrub-Wrens have ever been observed by the writer in the Gascoyne district or further north."

Campbell later wrote: "The western Scrub-Wren seems to have a wide range, but has not been recorded further north than the Shark Bay district, where naturally it is lighter coloured than typical birds from the south-west forest country. There appears no difference in specimens from either Dirk Hartog Island, Bernier Island (next but one northward to Dirk Hartog) and the mainland. . . . It appears that Grant's name, *balstoni*, and description will amply serve to distinguish the *Sericornis* in Shark Bay region, including the islands thereabouts."

Whitlock's field notes read: "Very common on Dirk Hartog, haunting the larger bushes, especially where there are dead ones by preference. It often happened when I found a *Malurus* or other small nest, that the owners were invisible. Whenever I attempted to call them up, a pair, or more often three individuals of this Scrub-Wren invariably put in an appearance. It is common on Peron Peninsula too, but hardly so numerous as on Dirk Hartog. I spent a lot of time watching this species in the hopes of finding a nest but was completely baffled. I saw one pair only, accompanied by a brood of three young ones; I am therefore inclined to think it breeds at the end of summer, March or April. On the Peron Peninsula an old nest was found which, I think, was

THE BIRDS OF AUSTRALIA.

that of a *Sericornis*. It was of the semi-domed type, and was resting very low down in large dead bush."

When Captain S. A. White visited West Australia in 1921 he collected in the Cape Naturaliste Region and wrote "*Sericornis maculatus*. A common bird in the thick, dwarf vegetation along the coastline. Mr. M'Gilp found three nests, all containing young. I fancied this bird to be different from *S. m. osculans*, but upon comparing a series I find it would be impossible to separate them, so that *maculata* has a wide range."

Captain S. A. White has written me: "*S. maculatus osculans*. This bird is fairly plentiful amongst the mangroves along the Port Adelaide River, and I have met with it in the Mangroves north of St. Kilda and at Pondalowic Bay on Yorke's Peninsula. It is a timid little bird and at the slightest noise retreats into the densest part of the mangroves; curiosity over-rides its timidity and if one keeps perfectly quiet and makes any plaintive whistle it will gradually come closer and closer till it approaches within a few feet, but break a twig or move the body and in a moment the bird is lost sight of. *S. m. mellori*. During my many journeys through Eyre's Peninsula this bird was found to be quite plentiful in many localities where plenty of undergrowth abounds. Although the bird was found inland still it seemed more partial to the coastline; in habits and notes it resembles *S. m. osculans*. *S. m. ashbyi*. This is not a plentiful bird on Kangaroo Island and is very shy. I have met with it on the ironstone ridge in the centre of the island amongst the Yarras as well as in the tea-trees near the coast. Habits and note resemble those of other *Sericornis*."

Dr. Cleland wrote: "*S. maculata* in the tea-tree scrub, Adelaide, is somewhat like *Malurus cyanocephalus* in its habits. It flies when frightened from the low salt bush and hops up the tea-tree. The note, too, is not unlike at its onset, but is more of a scissor-grinding note. Irides white; food worms chiefly."

When Captain S. A. White described *S. maculatus rymilli* he observed: "This new subspecies was fairly numerous on Wedge Island; its habits seemed identical with other members of the genus. I have collected specimens from the nearest point of the mainland (Pondalowic Bay) which is under 20 miles distant from Wedge Island. These birds from the mainland are much darker, and agree with the typical *Sericornis m. osculans* from Port Adelaide. Specimens from Eyre Peninsula (*Sericornis m. mellori*) from the other side of the island, are before me, and the above new subspecies differs from them in being much lighter and not nearly so strongly marked."

Previous to the preparation of my "Reference List" all West Australian birds had been classed as *Sericornis maculatus* without subspecies, while Grant had named an island form as *Sericornis balstoni*, and the relationship of

SPOTTED SCRUB-WREN.

S. osculans with the Western species was not recognised. I then ranged the above together and added three subspecies making six in all as follows :

Sericornis maculata maculata Gould.

Albany, West Australia.

Sericornis maculata warreni Mathews.

"Differs from *S. m. maculata* in its darker head and greenish (not greyish) olive back. The spotting on the underside is more pronounced and the abdomen yellowish. Warren River."

Warren River District, West Australia.

Sericornis maculata osculans Gould.

Port Adelaide, South Australia.

Sericornis maculata mellori Mathews.

"Differs from *S. m. osculans* in being paler above and in having more white on the abdomen. Eyre's Peninsula."

Eyre's Peninsula, South Australia.

Sericornis maculata ashbyi Mathews.

"Differs from *S. m. maculata* in its larger size and having the markings on the throat more distinct and the flanks darker. Wing 60 mm. ; typical 53-56 mm. Kangaroo Island."

Kangaroo Island, South Australia.

Sericornis maculata balstoni Grant.

Bernier Island, West Australia.

A very pale island form, described from very worn greyish skins.

Simultaneously Campbell named the Kangaroo Island form, but in this case my name was published earlier. No alteration or addition was made otherwise that year, so that the six forms appeared with the same names in my 1913 "List."

Three years later Carter named :

Sericornis maculatus hartogi

From Dirk Hartog's Island, West Australia ;

then S. A. White described :

Sericornis maculatus rymilli

From Wedge Island, South Australia ;

and J. W. Mellor has added :

Sericornis maculatus geraldtonensis

From the Geraldton District of Mid-west
Australia ;

while F. R. Zietz has described :

Sericornis maculatus houtmanensis

From Houtman's Abrolhos, South-west
Australia.

THE BIRDS OF AUSTRALIA.

That many more subspecies would be named was certain from the published accounts such as Milligan's from the Wongan Hills, West Australia and Alexander from the Perth district.

Further, in the British Museum is a form of this species from Lithgow, New South Wales, suggesting that it occurs inland through that State. These birds are darker above with less rufous tinge than South Australian birds and the flanks are noticeably darker. These may be called :

Sericornis maculatus inopinatus subsp. nov.

while a series from Mount Gambier, South Australia, from the Gould collection and which puzzled him should also be named. They are noticeably paler than Port Adelaide birds, not unlike *S. m. mellori* but more dusky below, the throat with narrower streaks, and may be called :

Sericornis maculatus gouldianus subsp. nov.

Order PASSERIFORMES.

Family SYLVIIDÆ.

SERICORNIS TYRANNULUS.

NORTHERN SCRUB-WREN.

SERICORNIS TYRANNULA De Vis, Annals Queensl. Mus., No. 6, p. 42, Sept. 1905 : Charleville, Queensland.

Sericornis tyrannula De Vis, Annals Queensl. Mus., No. 6, p. 42, 1905 ; Mathews, Handl. Birds Austral., p. 77, 1908 ; *id.*, Nov. Zool., Vol. XVIII., p. 356, 1912 ; *id.*, List Birds Austr., p. 222, 1913 ; *id.*, Austr. Av. Rec., Vol. II., pt. 7, p. 135, 1915.

De Vis described this bird as follows :—

General colour of upper-surface rufous-brown, graduating from brown anteriorly to bright rufous posteriorly. Head and nape brown, uniform on the forehead. Wings rufescent brown, median coverts edged with rufous ; greater coverts blackish-brown, forming a dark rectangular blotch on the wing ; primaries broadly edged with pale rufous, in certain lights with rufescent grey ; mantle and scapulars rufescent brown, the rufous tint predominant on the lower back. Upper tail-coverts, bright rufous ; middle tail-feathers rufous-brown, the others dusky-grey, permeated by the dark band of the under-surface. Lores and cheeks subrufescent, the latter mottled with dark grey ; ear-coverts rufescent with pale shaft-streaks. Palbearal streak dark in front, rufous in centre, pale posteriorly. Chin, throat, upper breast and flanks, pale rufous passing into dusky-white on the lower breast and abdomen ; vent dusky-brown ; under tail-coverts bright rufous : tail with a black transverse band, occupying the third quarter from the base ; thighs and under-wings pale rufous ; bill, legs and feet dead straw-colour. Total length, 85 mm., culmen imperfect, wing 50, tail 42, tarsus 21. Tail rounded, four stiff bristles at the gape. Locality, Charleville. Collector, R. Broadbent.

writing "The Scrub-Wren under view appears to be easily distinguishable by its diminutive size and rufous under-tail from those of its fellow species, which, like it, have the dark band on the tail" and added "There is but one example of this bird and that of unknown sex. It is not at all unlikely that when it is better known it will be referred to another genus."

The description reads like that of a *Crateroscelis*, a New Guinea genus with a superficial resemblance to *Sericornis*, but with coloration agreeing with the one given by De Vis in general. The genus has a broader bill which would have attracted attention, but De Vis writes "culmen imperfect." In most other respects it agrees, but there is at present no recourse as the type is missing. I looked for it when in Queensland a few years ago and was compelled to record :

"Unfortunately the unique example was lost, and so I am not able to make any remarks about it."

No other specimen has yet been met with.

GENUS—TASMANORNIS.

TASMANORNIS Mathews, Nov. Zool., Vol. XVIII,
p. 353, Jan. 31, 1912. Type (by monotypy) *Sericornis humilis* Gould.

WHEN I proposed this genus I was adopting a lumping policy so did not give any details.

The bird is larger than *Sericornis*, with longer wings, longer tail and stronger legs and feet.

The bill is similarly formed, the rictal bristles more pronounced, the nasal bristles projecting a little, and the interramal space longer.

The wing has the fourth, fifth, sixth and seventh primaries subequal and longest, the eighth longer than the third, while the secondaries exceed in length the second primary: the first primary is rather narrow but is about half the length of the third, being more than half the length of the second.

The long tail is nearly square, being very slightly rounded.

The legs are quite like those of *Sericornis* but are stronger and the front of the tarsus appears clearly scutellated in some birds, obscurely so in others, due to the fusion of the plates.

This genus is obviously the island representative of the mainland *maculatus* form and shows quite as much difference from its mainland relations as does *Acanthornis*.



H. Grönvold. del

Witherby & Co

TASMANORNIS HUMILIS
(BROWN SCRUB-WREN).

TASMANORNIS HUMILIS.

BROWN SCRUB-WREN.

(PLATE 457.)

SERICORNIS HUMILIS Gould, Synops. Birds Austr., pt. iv., pl. (58), April 1, 1838 : Tasmania
=South Tasmania.

Sericornis humilis Gould, Synops. Birds Austr., pt. iv., pl. (58), April 1st, 1838 ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 133, Dec. 1838 ; *id.*, Birds Austr., pt. xix. (Vol. III., pl. 47), June 1st, 1845 ; *id.*, Handb. Birds Austr., Vol. I., p. 356, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 310, 1883 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 240, 1887 ; *id.*, *ib.*, 1887, p. 90, 1888 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 26, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 251, 1901 ; Littler, Emu, Vol. II., p. 169, 1903 ; A. G. Campbell, *ib.*, p. 207 ; *id.*, *ib.*, Vol. III., p. 161 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 305, 1904 ; Legge, Emu, Vol. IV., p. 103, 1905 ; A. G. Campbell, *ib.*, p. 121 ; Mellor, *ib.*, Vol. VI., p. 160, 1907 ; Fletcher, *ib.*, Vol. VII., p. 24, 1907 ; Mathews, Handl. Birds Austral., p. 77, 1908 ; A. G. Campbell, Emu, Vol. X., p. 36, 1910 ; Littler, Handb. Birds Tasmania, p. 41, 1910 ; Mathews, Nov. Zool., Vol. XVIII., p. 356, 1912 ; Dove, Emu, Vol. XV., p. 238, 1916 ; Lord, *ib.*, Vol. XIX., p. 105, 1919.

Sericornis gularis Legge, Victorian Naturalist, Vol. XIII., p. 84, Oct. 8th, 1896 : Kent Group, Bass Straits ; A. G. Campbell, Emu, Vol. IV., p. 121, 1905 ; Mathews, Handl. Birds Austral., p. 77, 1908.

Sericornis frontalis Mathews, Nov. Zool., Vol. XVIII., p. 355, 1912 ; *id.*, List Birds Austr., p. 220, 1913.

Not *frontalis* Vigors and Horsfield, 1827.

Sericornis flindersi White and Mellor, Emu, Vol. XII., pt. 3, p. 165, Jan. 1st, 1913 : Flinders Island, Furneaux Group.

Sericornis insularis Cole, Emu, Vol. XIII., pt. 2, p. 74, Oct. 1st, 1913 : Forsyth Island, Furneaux Group.

Sericornis longirostris insularis Mathews, List Birds Austr., p. xxvi., 1913.

Tasmanornis humilis humilis Mathews, List Birds Austr., p. 222, 1913.

Tasmanornis humilis flindersi Mathews, *ib.*, p. 223.

Tasmanornis humilis tregellasi Mathews, Austr. Av. Rec., Vol. II., pt. 5, p. 99, Sept. 24th, 1914 : King Island, Bass Straits.

Tasmanornis humilis gularis Mathews, Emu, Vol. XVI., p. 35, 1916.

Tasmanornis humilis insularis Mathews, *ib.*

DISTRIBUTION. Tasmania and the Islands of Bass Straits.

THE BIRDS OF AUSTRALIA.

Adult male. General colour of the upper-surface rust-brown including the top of the head, sides of the face, back, wings and tail; bastard-wing and primary coverts blackish-brown with white edgings to the feathers of the former; inner webs of flight-quills dark hair-brown with pale margins; the feathers on the forehead and sides of the face have whitish shaft-lines which gives a speckled appearance; chin, throat and cheeks greyish-white with more or less brown intermixed; breast and abdomen ochreous-yellow becoming ochreous-brown on the sides of the body, thighs, and under tail-coverts; axillaries, under wing-coverts and margins of quills below whitish-buff; remainder of quill-lining like the lower aspect of the tail. Eyes grey-hazel, bill blackish, feet dark. Total length 112 mm.; culmen 12, wing 55, tail 45, tarsus 22. Figured. Collected in Forsyth Island, Furneaux Group, on the 28th of November, 1912, and is the type of *Sericornis insularis* Cole. (Top figure.)

Adult male. General colour of the upper-surface chocolate-brown including the head, back, wings and tail; bastard-wing black with white margins to the feathers; primary-coverts uniform black; inner-webs of flight-quills blackish-brown; inner webs of tail-feathers dark brown; sides of face dusky brown; lores and base of forehead speckled with greyish-white; a dark brown space in front of the eye; chin and throat greyish-white intermixed with dusky brown; fore-neck, breast and abdomen ochreous-yellow, becoming more uniform on the last; flanks and under tail-coverts smoke-brown; thighs, axillaries, and under wing-coverts greyish-buff; under-surface of flight-quills dark greyish-brown; lower aspect of tail dark rufous-brown. Bill horn, eyes cream, feet light brown. Total length 138 mm.; culmen 12, wing 70, tail 52, tarsus 26. Figured. Collected on King Island on the 27th of April, 1914 and is the type of *T. h. tregellasi*. (Bottom figure.)

Adult female. General colour of the upper-surface rust-brown, including the top of the head, sides of the face, back, wings, and tail; bastard-wing and primary-coverts blackish-brown with white tips to the feathers of the former; inner webs of flight-quills dark brown with buffy-white margins; some of the tail-feathers fringed with white at the tips; forehead speckled with white; the space in front of the eye blackish-brown; chin and throat greyish-white intermixed with brown; breast and abdomen ochreous-yellow becoming smoke brown on the sides of the body, thighs and under tail-coverts; axillaries, under wing-coverts, and inner margins of quills below whitish-buff; remainder of quill-lining and lower aspect of tail hair brown. Bill and feet brown, eyes yellow. Total length 122 mm.; culmen 11, wing 59, tail 50, tarsus 25. Figured. Collected on Flinders Island, Furneaux Group, and is *T. h. flindersi* White & Mellor. (Middle left-hand figure.)

Adult male. Crown of head, sides of face, hind neck, sides of neck, and upper-back mouse-brown; lower back, wings, and tail rust brown; bastard-wing and primary coverts blackish with white tips to the feathers of the former; inner-webs of flight-quills dark hair-brown; the tail shows obsolete wren-like cross-bars; the feathers in front of the eye blackish-brown, a supraloral streak which extends to above the eye, chin, and lower cheeks whitish; middle of throat dusky-brown; breast, abdomen, and under tail-coverts dull lemon-yellow like the axillaries and under wing-coverts; lower flanks and thighs rust-brown; under-surface of flight-quills pale hair-brown, lower aspect of tail similar. Bill and feet horn. Total length 132 mm.; culmen 13, wing 65, tail 50, tarsus 28. Figured. Collected on the Kent Group, in November 1890, and is the type of *T. h. gularis* (Legge). (Middle right-hand figure.)

Adult male. Head, hind neck, and mantle greyish-brown becoming rufous-brown on the back, wings, and tail; bastard-wing brown, the feathers fringed with white at the tips; primary-coverts uniform black: primary and secondary quills brown,

BROWN SCRUB-WREN.

paler on the inner webs towards the base and rufous-brown on the outer webs ; upper tail-coverts and tail rufous-brown ; a white supraloral streak which extends over to behind the eye ; loreal spot blackish ; a line below the eye and ear-coverts dusky brown ; chin and sides of throat dull white ; middle of throat dusky brown more or less streaked with white ; fore-neck pale ochreous ; middle of abdomen yellowish-white ; sides of body and under tail-coverts rust brown ; under wing-coverts dull white. Total length 132 mm. Collected on the Kent Group, Bass Straits.

Adult female similar to the bird described, but paler and the characters everywhere more faintly pronounced. Total length 132 mm. ; culmen 16, wing 61, tail 51, tarsus 25.

Young bird. Reddish-brown above ; bastard-wing pale brown with white tips to the feathers ; the white line above the lores scarcely indicated ; no white streak on the sides of the throat ; chin and entire throat dull white-washed with rufous-brown ; remainder of the under-surface, the sides of the body and under tail-coverts paler rust-brown, the under wing-coverts also of the latter colour. Collected on the Kent Group.

Adult. Pale rufous-brown above, including the head, back, wings, and tail ; bastard-wing dark brown with whitish margins to the feathers and indistinct buffish tips to the major coverts ; throat, breast, and middle of abdomen whitish-grey ; sides of body pale rust-brown becoming darker on the lower flanks ; under wing-coverts pale buff. Total length 122 mm. ; culmen 15, wing 56, tail 50, tarsus 23. Collected on King Island.

Adult male. Upper-surface, chestnut brown including the head, entire back, wings, and tail ; bastard-wing dark brown edged with white at the tips of the feathers like some of the outer greater coverts ; primary-coverts uniform blackish ; lores white as also an indistinct line above the eye ; a spot in front of the eye, a line below the latter, and the ear-coverts slate-brown ; chin and a line on each side of the throat white with minute dark margins to the feathers ; middle of throat dark brown the feathers fringed with white ; breast and middle of abdomen pale sulphur-yellow, more or less mixed with pale dusky-brown, more particularly on the chest ; sides of body and under tail-coverts rufous-brown. Total length 133 mm. ; culmen 16, wing 61, tail 49, tarsus 25. Collected on King Island.

Young male. General colour above rufous-brown, including the head, back, wings, and tail ; bastard-wing dark brown edged with white at the tip of one feather and only a slight indication of a pale margin to some of the others ; lores more or less white at the base ; throat and cheeks pale ash-grey ; middle of abdomen whitish ; sides of body and under tail-coverts rust-brown ; under wing-coverts sandy-buff. Collected on King Island.

Immature female. General colour of the upper-surface smoke-brown including the top of the head, back, wings, and tail ; the tips of the feathers of the bastard-wing and greater upper wing-coverts fringed with whitish ; outer edge of wings similar ; primary-coverts and inner webs of flight-quills dark hair-brown fringed with white on the inner edges of the latter ; sides of face similar in colour to the top of the head but somewhat paler and having pale shaft-lines to the feathers ; base of lores and eyelids greyish-white ; chin and throat also greyish with minute blackish hair-like tips to the feathers ; breast pale smoke-brown like the thighs and under tail-coverts ; middle of abdomen whitish ; sides of body smoke-brown with dark lead-grey bases to the feathers ; under wing-coverts and inner edges of quills below whitish-buff ; remainder of quill-lining hair-brown ; lower aspect of tail similar but rather paler. Collected on Deal Island, Bass Strait, on the 6th of December, 1908.

THE BIRDS OF AUSTRALIA.

Nest. Domed, with side entrance. Composed of fine bark, moss, leaves, grass, etc., and lined with fine materials and feathers. Outside measurements 6 to 8 inches deep by 4 or 5 wide.

Eggs. Clutch, three. Ground colour purplish-buff or reddish, spotted with umber, especially at the larger end where a zone or cap is formed. 23 mm. by 17.

Breeding-season. August to December.

GOULD'S notes read: "This species is very generally dispersed over Tasmania; and as I have found it on some of the islands in Bass's Straits, it is not improbable that it may also extend its range to the southern coast of the continent of Australia. Ravines, deep glens, water-courses covered with dense herbage, and thickly-wooded copses are the situations congenial to its habits. Although abundant and generally distributed, it is a bird that is less seen, and one whose habits are less known than most others inhabiting the island. In many of its actions it closely resembles the *Troglodytes europæus*, particularly in its manner of hopping about on the ground, and from stone to stone, with its tail erect, in search of insects, upon which it solely subsists. It rarely flies more than a few yards at a time, but secretes itself in the midst of the little thicket in which it has taken up its abode. The male constantly cheers his mate with a pretty lively song, which, although neither loud nor voluminous, serves to give life to its secluded abode, which in many instances is in the depth of the forests, where few sounds are heard except the monotonous note of the Honeysucker, and the perpetual rippling of the rivulet as it steals over the stony bed of the gully. The sexes presenting no difference in the colouring of the plumage, by dissection alone can they be distinguished."

Mr. Frank Littler has written me: "Frequents more open and accessible country, though it is very fond of tracts with an abundance of undergrowth, where it procures its food. It is a fast runner and somewhat shy, so that it is with difficulty that one obtains a good view of it in the scrub. I have seen six or eight birds searching for insects among the grass and leaves and small bushes in a partly cleared patch. The slightest movement and they all flew off."

Mr. H. Stuart Dove's account is excellent. "On the 13th October one young one was hatched before 8 a.m., the second on the following morning. On 15th the young still blind and naked. Female always on or near the nest and her scolding notes like 'chee-chee-chee,' 'chee-chee' angrily and rapidly repeated when I am by, bring all the Blue Wrens, Browntails and Goldfinches in the locality to the spot, when they also hop around in the bushes and utter their scolding notes in sympathy. The male *Sericornis* I have only seen twice so far; he is silent and shy, the female being quite bold in comparison. On the 19th the two young were still blind and naked, except for a few dark sprouts on wings, and make a faint 'cheep-cheep' when touched; the parents are now

BROWN SCRUB-WREN.

always away when the nest is visited between 7 and 8 a.m. On the 20th the eyes partly open, like a dark spot surrounded by a light film; head and body still naked, dark grey sprouts on wings. On 21st the eyes were well open, wings sprouting well, though body and head almost naked still. Make very loud rasping 'weeee' when handled. Oct. 23. Took out young *Sericornis* from nest, when it 'cheeped' very loudly; found the wings had long dark sprouts with a bluish appearance; head and back have sparse light-brown down; a fat ungainly squab with dark-tinted bill and long weak legs. Oct. 25. Young *Sericornis* now have greyish tail-feathers sprouting and the brown coverts above them also developing; brown feathers appearing across shoulders, but remainder of body and head (except of course the wings) still only show a sparse light-brown down. Adult female makes a loud scolding and comes close down when I handle the young; male is quieter and shyer. Oct. 28. Young *Sericornis* left nest this morning; plumage dark brown on upper-surface, very light brown (a sort of rufous tint) on under-side. Tail very short, about $\frac{3}{4}$ inch, upper and under tail-coverts developing show a nice rich brown; white marks on wing quite as conspicuous as in adult. Plumage is in fact close to that of adult, except that no splashes were noticed on the under-surface, which was light grey with rufous tint. Bill dark; young made loud sort of piping note when handled. This gives the time of fledging as fourteen to fifteen days, but as eggs were supposed to be hard set when nest found on Sept. 30th, date of incubation is uncertain."

Captain S. A. White has written me: "I have met with this bird in numbers in many parts of Tasmania I have visited and they are fairly plentiful upon Flinders Island. They spend much of their time upon the ground amongst the fallen leaves where they scratch for insect life which seems to be their chief food. When visiting the Kent Group in Nov. 1908, the species (known as *gularis*) was found fairly plentiful amongst the low bush on the steep sides of the islands; their habits seemed the same as other members of the genus, but unfortunately I was not on the islands at the time of nidification."

Mr. E. Ashby has noted: "I found this bird very common at Bell's Hill, North-east Tasmania. The birds were very active, feeding on the ground amongst the fern on the top of the ranges; their peeping whistle could be heard continually if one kept quite quiet."

Mr. J. W. Mellor also writes: "Have noted this bird in the South of Tasmania, at Mount Wellington and its surroundings; also at Launceston, in the north at Mount Barrow and Mount Arthur, and in the Great Lake District and in various other parts of Tasmania. It is found in the deep gullies of the mountains and on the topmost ridges, and lives on the ground, especially where the decaying vegetation is thick and humid, where

THE BIRDS OF AUSTRALIA.

with its strong legs and claws it scratches the rubbish about in search of insect titbits. It can easily be brought to the edge of the thick bushes in which it lives, by uttering a squeaking noise with the lips, its inquisitive nature getting the better of its shyness. As to *S. gularis*, this is very sparsely distributed in the Kent group, and doubts were even entertained as to its existence prior to 1908, when on Deal Island I left the main party for the purpose of investigating this species, and after considerable trouble in penetrating the thick bushes I was able to call a couple of birds to me, and secure one. Another of the party went in another direction and secured a couple of young birds, showing that the birds had not long done breeding, but of course no notes were obtained as to its breeding habits."

Probably the best descriptive work done by an Australian was that of A. G. Campbell, and dealing with Victorian and Tasmanian birds in a comparative sense he wrote: "Scrub-Wrens. Several phases exist in Tasmania and the adjacent islands of this genus, which are sufficiently distinct from one another to be made subspecies. The specimens of *S. humilis* from Mount Wellington are the largest and darkest of all; those from Launceston are different in size and colour; the mantle, instead of being dark olive, is tinged with rufous; the head and the outer edges of the primaries are of a much lighter tint, and the tail is brownish-olive instead of deep brown. The legs are black, and not dark brown, while the dark subterminal band on the tail is pronounced in the northern variety, but very obscure in the southern. The sexes are distinguished in each case by the lores being black in the male and slate coloured in the female. On King Island the bird more closely resembles *S. humilis*, but, besides being lighter in general colour and with no prominent dark centres to the chest feathers, it has distinct subterminal tail markings, and, further, the dusky under tail-coverts are tipped with dull yellow, a point characteristic of *S. osculans* of the mainland, but not noticed in *S. humilis* proper. The young is of a deep rich brown colour. But it is with the *Sericornis* from Kent Group, the nearest of Tasmanian islands to the mainland, that the greatest difference is shown. They are distinctly two strains, the larger, *S. gularis* (Legge) having a longer bill and shorter wings than *S. humilis*; general colour greyish-olive; throat feathers brownish-black, a few only showing lighter edges; under tail-coverts edged with dull yellow; tail minus any dark subterminal band. The smaller specimens are of a peculiar washed-out appearance, the mantle being rust-coloured on scapulars, back, and rump, with a lighter head, minus any prominent markings; white edgings to greater wing-coverts very faint; under tail-coverts and flanks brownish-fawn; tail uniform. Several specimens obtained are presumably adult birds, so the existence of two phases in one area must be due to their living in different surroundings."

BROWN SCRUB-WREN.

Sericornis humilis was known from Tasmania and the island of Bass Straits for many years, and then in 1896 Legge described a new species from the Kent Group as *Sericornis gularis*. This was not easily recognised, and when I made up my "Reference List" I allowed it as a separate species, but called it *S. frontalis*, concluding that Vigors and Horsfield's type which was in bad condition might have come from that group as they had specimens of some birds from that locality. Then *S. humilis* was also allowed as a distinct species, but I noted that it was separable generically to workers who did not agree to large genera and proposed for it the genus name *Tasmanornis*.

In 1913 White and Mellor described the Flinders Island form of *humilis* as *Sericornis flindersi*, noting it was only a new subspecies but giving no differential characters. They wrote "That Flinders Island yielded a new *Sericornis* is not a surprise, when so many of the islands in Bass Strait have their own varieties of this widely dispersed genus. Not uncommon. Found in the thick undergrowth on mountain sides and in the deep gullies." What they meant by the first statement is not clear, as Legge's *S. gularis* was the only "species" named in this genus from the islands in Bass Straits at that time and no varieties had been named at all. Perhaps they had in mind A. G. Campbell's essay. Immediately afterward, however, Cole named a form from the Forsyth Island in the same (Furneaux) group as Flinders Island, calling it *Sericornis insularis* and giving as distribution "Forsyth, Cape Barren and Clarke Islands," but no comparison was made in this instance either. The next year Mr. A. J. Campbell gave me the type of *S. gularis* Legge and I was enabled to recognise that it was a form of *humilis* and at the same time I named:

Tasmanornis humilis tregellasi.

"Differs from *T. h. humilis* in being lighter above."

King Island.

Thus at the present time there is:

Tasmanornis humilis humilis (Gould).

Tasmania.

Tasmanornis humilis gularis (Legge).

Kent Group, Bass Straits.

Tasmanornis humilis flindersi (White and Mellor).

Flinders Island, Furneaux Group, Bass Straits.

Tasmanornis humilis insularis (Cole).

Forsyth Island, Furneaux Group, Bass Straits.

Tasmanornis humilis tregellasi Mathews.

King Island, Bass Straits.

THE BIRDS OF AUSTRALIA.

As however it is obvious that there are two forms (at least) on the mainland it was necessary to determine Gould's form. That was easy as he stated it was "dark olive-brown" and otherwise the description applies only to the southern form. I therefore fix South Tasmania as the type locality of Gould's *S. humilis* and propose

Tasmanornis humilis archibaldi subsp. nov.

for the Launceston (Northern) form which I find to differ exactly as pointed out by A. G. Campbell, viz. in its smaller size, paler colour, etc.

As this species appears to vary on every island, Legge's note on the form of Maria Island may indicate another race, viz. :

"The Bush-Tit is common about the creeks in the bush, a locality in which it is usually found all over the island. Mr. Morton likewise found it about rocks near the sea-coast. The inquisitive nature of this little bird renders it very familiar, and in the unfrequented districts of the West it is so tame that I have had it alight close to my feet and hop about, peering into my face in a charmingly fearless manner."

GENUS—OREOSCOPUS.

OREOSCOPUS North, Agric. Gazette, N.S.W.,

Vol. XVI., pt. 3, p. 247, Mch. 2, 1905. Type

(by monotypy) *Sericornis gutturalis* De Vis.

LARGER birds with very long straight bills, rounded wings, long slightly rounded tail, short legs and strong feet.

The bill is very long and slender, longer than the head, the culmen straight, the tip steeply decurved with a posterior notch, laterally compressed, culmen ridge keeled; the nasal groove long, extending nearly half the length of the bill, but the nasal apertures small and linear and placed posteriorly in the groove and almost hidden by feathers; the interramal space narrow, but nearly half the length of the under mandible which is slender; rictal bristles very small and obscure, and no nasal bristles apparent.

The wing has the third, fourth, fifth and sixth primaries equal and longest, the second and seventh subequal and little shorter, the secondaries equal to the second primary and longer than the tenth primary; the first primary about half the length of the third.

The tail is long and slightly rounded in shape.

The legs are comparatively short, the tarsus about half the length of the tail and about one-third the length of the wing; the front of the tarsus is scutellate, the scutes tending to fusion and the hind part bilaminate; the hind toe is stronger and the claw stronger than the middle toe and claw but shorter; the inner and outer toes and claws are subequal and about equal to the middle toe alone.

OREOSCOPUS GUTTURALIS.

FERN-WREN.

(PLATE 458.)*

SERICORNIS GUTTURALIS De Vis, Proc. Roy. Soc. Queensl., Vol. VI., pt. 5, p. 244, Oct. or Nov. 1889: Herberton, North Queensland.

Sericornis gutturalis De Vis, Proc. Roy. Soc. Queensl., Vol. VI., p. 244, 1889; Hall, Key Birds Austr., p. 27, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 252, 1901; Broadbent, Ibis, 1902, p. 381; Mathews, Nov. Zool., Vol. XVIII., p. 357, 1912; A. G. Campbell, Emu, Vol. X., p. 36, 1910.

Oreoscopus gutturalis North, Agric. Gazette N.S.W., Vol. XVI., p. 247, 1905; Emu, Vol. V., p. 47, 1905; Mathews, Handl. Birds Austral., p. 77, 1908; *id.*, Emu, Vol. VIII., p. 34, Col. Pl. A., July 1st, 1908; *id.*, List Birds Austr., p. 223, 1913; North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., p. 427, 1914; Campbell & Barnard, Emu, Vol. XVII., p. 27, 1917.

Oreoscopus gutturalis boweri Mathews, Austral. Av. Rec., Vol. III., p. 61, April 7th, 1916: Cairns, Queensland.

DISTRIBUTION. North Queensland (Cairns District only).

Adult male. General colour of the upper-surface smoke brown including the top of the head, back, wings and tail; inner webs of flight-quills blackish-brown; sides of face similar to the crown with whitish shaft-lines to the feathers; forehead and lores speckled with white; chin and upper throat white, which extends in a line along the lower cheeks on to the sides of the neck; lower throat and fore-neck black; remainder of the under-parts similar to the upper-surface but much paler; under-surface of flight-quills dark hair-brown like the lower aspect of the tail. Bill black, feet pale transparent brownish, eyes dark brown. Total length 133 mm.; culmen 16, wing 71, tail 46, tarsus 24. Figured. Collected at Kuranda, Cairns, North Queensland, on the 30th of November, 1912.

Adult female. General colour above dark chocolate-brown; wing-coverts like the back; primary-coverts and quills darker, dusky-brown, externally washed with the same chocolate-brown as the back; lower back, rump, and upper-tail coverts like the rest of the back, but with a slight tinge of rusty brown; tail-feathers dusky brown, slightly washed with rusty brown; head decidedly darker than the back, the sides of the crown inclining to dull blackish, lores black, as well as the sides of the face and ear-coverts, the latter being rufescent-brown in the centre, this colour appearing as streaks; below the eye a small white line along the eyelid, and above the eye, a superciliary streak, not very strongly defined, reaching from above the lores to above the hinder end of the ear-coverts, where the streak becomes whitish-brown.

* This Plate is lettered Collared Scrub-Wren.



H. Grönvold. del

Witherby & Co

OREOSCOPUS GUTTURALIS
(*COLLARED SCRUB-WREN*)

ACANTHORNIS MAGNUS.
(*SCRUB-TIT*).

FERN-WREN.

instead of white; cheeks and throat white, followed by a broad black band across the lower throat, extending to the sides of the neck; remainder of under-surface fulvous-brown slightly rufescent on the sides of the body, the centre of the breast somewhat washed with grey; under tail-coverts fulvous-brown, with dull olive-yellowish tips to the feathers; under wing-coverts like the breast, with a slight olive tint, those round the bend of the wing fawn colour; quills dusky-brown below, somewhat ashy along the inner web. Total length 122 mm.; culmen 17, wing 65, tail 45, tarsus 22.

The above is the description of the type specimen, now lost.

Nest. "Dome-shaped, with large oval entrance in the side. Composed almost entirely of fresh green moss, with a slight admixture of fine black fern stems. No lining other than green moss. Measurements 7 inches high, 5 from front to back. Entrance 2 inches by $\frac{1}{2}$ inch." (North.)

Eggs. Clutch two—white. 22 mm. by 17.

Breeding-season. November and December.

THIS beautiful and very distinct bird is one of the best discoveries made in the Cairns District and has so far no near relation.

The account of the nest finding was published by North at the time of introduction of his new genus in an absurd periodical for such an item, but was reprinted in the *Emu* so that it is accessible to all oologists.

In view of our ignorance of its habits it is unfortunate that Messrs. Campbell and Barnard should have failed to give any account, contenting themselves with writing: "This species is one of the novelties of the northern scrubs. It spends almost its whole time on the ground, and resembles the *Sericornes*. It builds a bulky nest, almost entirely of moss, and as large as a football, which is suspended to a fern or low bush near the ground. The entrance is at the side. We were unfortunate in not taking eggs. One nest we had under surveillance was rifled by some enemy (beast)."

GENUS—ACANTHORNIS.

ACANTHORNIS Legge, Papers Proc. Roy. Soc. Tasm.,
1886, pp. 236, 240, 1887. Type (by monotypy) *Acanthiza magna* Gould.

THIS genus is apparently the Tasmanian development of *Sericornis frontalis* and is all Sericornine in detail, save the arched bill and, of course, the more rounded wing and longer legs.

The bill is long and the culmen is strongly arched, the tip delicately decurved, the sides strongly compressed; the nasal groove about one-third the length of the bill with the frontal-feathers projecting and obscuring the linear nostrils; the under mandible slight; the rictal bristles pronounced.

The wing has the fifth and sixth primaries longest, the fourth a little shorter and equal to the seventh; the third longer than the eighth and much longer than the second which is less than twice the length of the short first; the secondaries are longer than the second, but shorter than the third primary.

The tail is long and rounded.

The legs are long and the feet small; the front of the tarsus is booted and the hind part bilaminate; the toes are weak, claws small; the outer toe and claw slightly longer than the inner toe and claw which is equal to the middle toe alone; the hind toe and claw are equal to the middle toe and claw, the hind claw being longer but not much stronger.

Order PASSERIFORMES.

No. 551.

Family SYLVIIDÆ.

ACANTHORNIS MAGNUS.

SCRUB-TIT.

(PLATE 458.)

ACANTHIZA MAGNA Gould, Birds Austr. Suppl., pt. 2, pl. 28, Sept. 1st, 1855 : Tasmania.

Acanthiza magna Gould, Birds Austr. Suppl., pt. 2, pl. 28, 1855 ; *id.*, Handb. Birds Austr., Vol. I., p. 373, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878.

Sericornis magna Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 308, 1883 ; Ramsay, Tab. List Austr. Birds, p. 9, 1888 ; Hall, Key Birds Austr., p. 26, 1899 ; Mathews, Nov. Zool., Vol. XVIII., p. 357, 1912.

*Acanthornis magna** Legge, Papers Proc. Roy. Soc. Tasm., 1886, pp. 236, 240, 1887 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 241, 1904 ; Littler, Emu, Vol. II., p. 169, 1903 ; (Legge), *ib.*, Vol. III., p. 162, pl. ix., 1904 ; A. G. Campbell, *ib.*, Vol. IV., p. 111, 1905 ; A. L. Butler, *ib.*, Vol. V., p. 156, 1906 ; Campbell, *ib.*, Vol. VI., p. 126, 1907 ; A. L. Butler, *ib.*, Vol. VII., p. 92, 1907 ; Mathews, Handl. Birds Austral., p. 77, 1908 ; Thompson, Emu, Vol. XI., p. 40, 1911 ; Littler, Handb. Birds Tasmania, p. 40, 1910 ; Mathews, List Birds Austr., p. 223, 1913.

Acanthornis gouldi Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916 : new name for *A. magna* Gould (errore).

DISTRIBUTION. Tasmania.

Adult male. General colour of the upper parts dark chocolate-brown including the top of the head, back, wings and tail ; bastard-wing blackish tipped with white like some of the lesser coverts ; primaries blackish ; inner webs of flight-quills blackish fringed with white, which extends to the tips of some of the innermost ; tail subterminally banded with black and fringed with white at the tips of some of the feathers ; sides of face including the lores dusky grey, somewhat paler on the latter ; chin and throat white, becoming yellowish-white on the breast, abdomen and under tail-coverts ; sides of body and thighs smoke-brown ; axillaries and under wing-coverts white more or less tinged with yellow ; under-surface of flight-quills dark hair-brown fringed with white ; lower aspect of tail similar to its upper-surface but paler. Bill dark horn, feet flesh. Total length 130 mm. ; culmen 12, wing 58, tail 50, tarsus 24. Figured. Collected on Mount Arthur, Tasmania, on the 11th of November, 1914.

Adult female similar to the adult male.

* Also spelt *magnus*.

THE BIRDS OF AUSTRALIA.

Immature. "Young birds resemble the adults, but have the superciliary stripe and chin dull ochraceous-brown; the throat is uniform in colour with the olive-brown breast, with a slight dusky wash on the lower portion" (North).

Nest. Domed, with side entrance. Composed of moss grass, rootlets etc. and heavily lined with feathers. Outside measurements 7 to 8 inches high by 4 wide.

Eggs. Clutch, three. Whitish blotched with purple, especially at the larger end. 18-19 mm. by 14.

Breeding-season. August to January.

GOULD considered this species an *Acanthiza*, writing: "In size it approaches the smaller species of *Sericornis*; but in its structure and the character of its plumage it is closely allied to the members of the genus in which I have placed it," recording that he had received it from Ronald C. Gunn, Esq., and had no notes as to its habits.

Nothing more was heard about this species until Legge proposed a new genus, *Acanthornis*, for it. It was later regarded with interest when the Australian Ornithologists Union held their session in Tasmania and met with it in the flesh.

Mr. A. G. Campbell has written me: "The main characteristics of this unique species are worthy of review. Though often seen on the ground among fallen scrub like the *Sericornis*, it seems equally at home in the tops of the musk (*Aster argophyllus*) and hazel (*Pomaderris*) trees, and like an *Acanthiza* it frequently fastens for a moment or two on the side of a tree-trunk to survey an intruder. It has a merry song quite unlike any of its bush mates, and when seen in the Tasmanian bush is easily identified by the prominent white wing markings and white throat. The nest is a round, bulky structure very like that of a *Sericornis*, plentifully built of green moss, shreds of bark and fern down, placed five or six feet high, sometimes in the large fork of a tree hidden in a gully, sometimes in the bushy top of a wild currant (*Coprosma*) bush, but more often in the cluster of dead fronds hanging from a tree-fern. The eggs, though large, are distinctly of the *Acanthiza* type (white ground with reddish spots), and help materially to place the owner in the peculiar position it occupies as a connecting link between two well-known genera."

Captain S. A. White has sent: "This is a very shy bird and keeps very closely to the undergrowth, where it moves about with great rapidity, silently searching the tree ferns and decaying logs for insect life."

Mr. J. W. Mellor has sent me the following note: "This bird was considered to be extinct, as no specimens had been got for such a long time since Gould's description, but during the third Congress of the Aust. O.U. at Hobart in November 1903, the bird was rediscovered by Messrs. A. J. and A. G. Campbell and myself; we got several specimens and a nest and clutch of eggs was also

SCRUB-TIT.

secured in a dense gully running up Mount Wellington from Glenorchy, the nest being cunningly placed in the perpendicular fork of a fair sized tree, being domed with a side entrance; this was taken on Dec. 2. The habits of this bird are decidedly those of the *Sericornis* family, while the eggs are in shape and colour and spotted like the *Acanthiza* family. The birds were found in deep gullies, where the undergrowth was excessively thick and the moisture excessive; here the bird hops about in the same manner as the *Sericornis* and we had to keep very quiet to get a glimpse of it."

This rediscovery brought forth a fine account from A. L. Butler, from which I quote the following items: "I have only shot two specimens of this bird, one of which I dissected, and found that the stomach contained parts of various insects, small snails and beetles. . . . I have spent many hours watching this bird feeding and building its nest, and to my mind it closely resembles the Tree-Creepers (*Certhiidae*). With its mouselike movements it will fly to the base of a tree-fern, run rapidly to the top and down the other side, just pausing long enough to grasp an unwary beetle, or some such small object, then off again to another tree, and repeat the performance. When building it is very wary, and if it sees anyone watching it will at once begin to put the material which it is carrying in quite a different place from where its nest is situate, and will do this for some time, making several trips, and bringing material to do so. This I have noticed several times, and when the intruder has withdrawn for some time it will go on building at the nest, sometimes using the material it has placed in the false position, but more often leaving it where it was first put. They will go a long way for material suitable to their needs, and on one occasion I followed a pair of them for over a quarter of a mile. They had found a dead opossum, and were engaged in lining their home with its fur. It took me just over an hour to find that nest, though some 200 yards of the distance was open country. Whilst it is feeding its note is a short 'Cheep, cheep,' but at times you will hear it trilling out a little song something like the *Calamanthus* (Field-Wren), but not so full or sustained as that bird's note. It would be a difficult matter to place any limit to the distribution of this species, as I have seen members of it at the Huon, Carnarvon, North-west Bay River, Glenorchy, Bismarck, New Norfolk, etc., and as high up on the mountain as the Springs and under the Organ Pipes."

A good account of the nest and nesting-place was given, and later a better one in detail of the young being fed.

"I counted 83 trips for both parents in 20 minutes. Only once did I see the larger of the three snatch the tempting morsel from his brother's or sister's mouth; the number of times each nestling was fed being 28, 26, 29, and yet the father and mother were not present together and did not see which

THE BIRDS OF AUSTRALIA.

young one had been fed last. Sometimes they would both feed the same one, but more often would feed the one on either side and then the middle one. Several times the mother remained with the young while the male bird was away hunting, and it was a very pretty sight to see how she attended the little ones, preening their feathers, and pulling off little bits of fluff and generally making them look smart against their father's return. I may state that it is not a rare bird in my opinion, if one knows its habits and where to look for it; but being a scrub bird, it naturally retreats farther away as the land is cleared, especially the creeks and gullies, which are its natural haunts."

The question of the disposition of Gould's types is under review and I have suggested that Gould did not always figure the specimen he first described, but if a better bird came to hand he would utilise that. This view is well confirmed in the case of the present species, as there are two specimens in the British Museum both purchased from Gould at different times; one bears Gould's label with the information in Gould's own handwriting "*Acanthiza magna*. Type and only specimen V. D. Land." while the other bears Gould's label with the handwriting of his assistant "*Acanthiza magna* new species figd. in pt. 2 Supp. Birds Australia" and "Tasmania" added in another hand.

GENUS—MALURUS.

MALURUS Vieillot, Analyse nouv. Ornith., p. 44, April 14,

1816. Type (by monotypy) *Motacilla cyanea*.

Malacurus Gloger, Hand-und Hilfsbuch, 1842, p. 282, emendation of *Malurus*.

SMALL brilliantly coloured birds with medium bills, short wings, very long tails and long weak legs and feet. The face adorned with erectile ear-coverts. The bill is shorter than the head, culmen not much arched, tip decurved, sharp and posteriorly notched; nasal groove about one-third the length of the exposed culmen, linear nostrils operculate, feathers encroaching on to the bill but not hiding the nostrils; there are no nasal bristles, but half a dozen rather weak rictal ones; upper mandible rather narrow and culmen keeled with a gradual basal expansion; lower mandible medium, interramal space small and feathered.

The wing is short, with the first primary about half the length of the third, the second less than the third also and a little shorter than the secondaries; the fourth, fifth, sixth and seventh longest and subequal, the third equal to the eighth and little shorter than the preceding.

The tail is longer than the wing and strongly graduated, forming a fan. The legs are long and slender, the front of the tarsus booted, the hind-part bilaminate; the feet are weak, the claws short and curved; the outer and inner toes are subequal and with the claw equal to the middle-toe alone; the hind-toe and claw is scarcely stouter than the middle toe and claw and these are about equal, the toe being a shade short and the claw a shade longer respectively.

Key to the Species.

The abdomen and under tail-coverts white	Male	<i>M. cyaneus</i>
The abdomen and under tail-coverts blue	„	
Black band across the rump	„	<i>M. melanotus</i>
No black band across the rump	„	<i>M. splendens</i>

Order PASSERIFORMES.

No. 552.

Family SYLVIIDÆ.

MALURUS CYANEUS.

BLUE WREN.

(PLATE 459.)

MOTACILLA CYANEA Latham, Gen. Synops. Birds, Vol. II., pt. 2, p. 501, 1783, *ex* Ellis M.S. : South Tasmania.

Motacilla cyanea Ellis, Narr. Voy. Captain Cook, p. 22, 1782 : Adventure Bay, S. Tas. : *Nomen nudum* ; Latham, Gen. Synops. Birds, Vol. II., pt. 2, p. 501, 1783 ; Gmelin, Syst. Nat., pt. 2, p. 991, July 20th, 1789, based on Ellis account *ex* Latham.

Motacilla superba Shaw and Nodder, Naturalists' Miscellany, Vol. I., pl. 10, Nov. 1789 : South Tasmania.

Malurus cyaneus Vieillot, Nouv. Dict. d'Hist. Nat., Vol. XX., p. 215, 1818 ; Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 221, 1827 ; Gould, Synops. Birds Austr., pt. I., pl. 8, 1837 ; *id.*, Birds Austr., pt. III. (Vol. III., pl. 18), June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 317, 1865 ; Diggles, Orn. Austr., pt. v., 1866 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 589 (Q) ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 286, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; North, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. V., p. 505, 1891 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 163, 1901 ; North, Proc. Linn. Soc. N.S.W., Vol. XXVI., p. 632, 1901 ; *id.*, Emu, Vol. II., p. 112, 1902 (Tas.) ; Hill, *ib.*, p. 163, 1903 (Vic.) ; North, Ibis, 1904, p. 672 (Tas.) ; *id.* Austr. Mus. Spec. Cat. No. 1. Vol. I., p. 204, 1904 ; A. G. Campbell, Emu, Vol. IV., p. 119, 1905 (Vic.) ; Barrett, *ib.*, Vol. V., p. 20, pl. I., 1905 (Vic.) ; A. G. Campbell, *ib.*, p. 39 (Vic.) ; *id.*, *ib.*, p. 141, 1906 (Kangaroo Island) ; *id.*, *ib.*, p. 152 (Vic.) ; (Phillips), *ib.*, Vol. VI., p. 77, 1907 (Moult) ; Batey, *ib.*, Vol. VII., p. 5, 1907 (Vic.) ; Mathews, Handl. Birds Austral., p. 77, 1908 (Tas.) ; Burrell, Emu, Vol. VIII., p. 95, 1908, N.S.W. ; Cleland, *ib.*, p. 151, 1909 ; Burrell, *ib.*, Vol. IX., p. 34, 1909 ; Dove, *ib.*, p. 151, 1910 (Tas.) ; S. A. White, *ib.*, Vol. XII., p. 3, 1912 (Eyre Peninsula) ; *id.*, *ib.*, Vol. XIV., p. 141, 1914 (Mallacoota, Vic.) ; Ford, *ib.*, Vol. XVII., p. 237, 1918 ; Le Souëf and Macpherson, *ib.*, Vol. XX., p. 89, 1920 (Sydney).

Malurus longicaudus Gould, Synops. Birds Austr., pt. IV., App., p. 4, April 1st, 1838 : [Not *Malurus longicaudus* Temminck, Manuel Ornith., 2nd ed., Vol. I., 1820.]

Tasmania = South Tasmania. Gould, Proc. Zool. Soc. (Lond.), 1837, p. 148, Dec. 1838 ; *id.*, Birds Austr., pt. III. (Vol. III., pl. 19), June 1st, 1841 ; *id.*, Handb.



H. Grönvold. del

Witherby & Co

MALURUS CYANEUS
(BLUE WREN).

BLUE WREN.

Birds Austr., Vol. I., p. 320, 1865; Diggles, Ornith. Austr., pt. v., 1866; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Fletcher, Emu, Vol. XIV., pp. 166, 218, 1915.

Malurus gouldi Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 287 (*ante* March 26th), 1879: new name for *M. longicaudus* Gould = South Tasmania; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 16, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 169, 1901; Littler, Emu, Vol. III., p. 27, 1903; A. G. Campbell, *ib.*, Vol. IV., p. 118, 1905; Dove, *ib.*, Vol. V., pp. 37, 88, 1905; Legge, *ib.*, Vol. VII., p. 146, 1908; Littler, *ib.*, Vol. IX., p. 249, 1910; *ib.*, Handb. Birds Tasm., p. 26, 1910; Fletcher, *Emu*, Vol. XIII., p. 50, 1913.

Malurus cyanochlamys Sharpe, Proc. Zool. Soc. (Lond.), 1881, p. 788, Oct. 1st: Moreton Bay, Queensland; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 17, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 168, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., pp. 206-10, 1904; Mathews, Handl. Birds Austral., p. 77, 1908; Hall, Emu, Vol. IX., p. 127, 1910 (Eyre Peninsula); Cleland, *ib.*, p. 222, (Food); *id.*, *ib.*, Vol. XI., p. 87, 1911 (Food, S.A.); S. A. White, *ib.*, Vol. XIX., p. 219, 1920 (Q.).

Malurus elizabethæ Campbell, Ibis, 1901, p. 10, Jan. 1st: King Island, Bass Straits; *id.*, Emu, Vol. II., p. 229, pl. x., 1902; *id.*, Nests and Eggs Austr. Birds, Vol. I., p. 169, Vol. II., p. 1077, 1901; Hall, Key Birds Austr., 2nd ed., p. 110, 1906; Mathews, Handl. Birds Austral., p. 77, 1908; Littler, Handl. Birds Tasm., p. 28, 1910.

Malurus superbus North, Proc. Linn. Soc. N.S.W., Vol. XXVI., p. 632, 1901=May 20th, 1902 (*ex* Shaw and Nodder for N.S.W. bird).

Malurus australis North, Ibis, 1904, p. 672, Oct.: Sydney (=Meadow Bank, near Ryde), New South Wales; Emu, Vol. IV., p. 180, 1905.

Malurus cyaneus cyaneus Mathews, Nov. Zool., Vol. XVIII., p. 357, 1912; *id.*, List Birds Austr., p. 223, 1913.

Malurus cyaneus cyanochlamys Mathews, Nov. Zool., Vol. XVIII., p. 357, 1912; *id.*, List Birds Austr., p. 224, 1913.

Malurus cyaneus australis Mathews, Nov. Zool., Vol. XVIII., p. 357, 1912; *id.*, List Birds Austr., p. 224, 1913.

Malurus cyaneus henriettæ Mathews, Nov. Zool., Vol. XVIII., p. 357, Jan. 31st, 1912: (Olinda) Victoria; *id.*, Austral Av. Rec., Vol. I., p. 60, 1912; *id.*, List Birds Austr., p. 224, 1913; Belcher, Birds Geelong, p. 285, 1914.

Malurus cyaneus leggei Mathews, Nov. Zool., Vol. XVIII., p. 358, Jan. 31st, 1912: Point, *i.e.*, Port Adelaide, South Australia; *id.*, List Birds Austr., p. 224, 1913; S. A. White, Emu, Vol. XVIII., p. 22, 1918.

Malurus cyaneus ashbyi Mathews, Nov. Zool., Vol. XVIII., p. 358, Jan. 31st, 1912: Kangaroo Island; *id.*, List Birds Austr., p. 224, 1913.

Malurus cyaneus elizabethæ Mathews, Nov. Zool., Vol. XVIII., p. 358, 1912; *id.*, List Birds Austr., p. 224, 1913.

Malurus cyaneus fletcheræ Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 93, Sept. 18th, 1912: Ringarooma, North Tasmania; *id.*, List Birds Austr., p. 223, 1913.

THE BIRDS OF AUSTRALIA.

Malurus cyaneus samueli Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 93, Sept. 18th, 1912 :
Flinders Island, Bass Strait ; *id.*, List Birds Austr., p. 224, 1913.

Malurus samueli S. A. White, Emu, Vol. XII., p. 163, 1913.

DISTRIBUTION. Eastern Australia from South Queensland, through New South Wales, Victoria and South Australia to Eyre's Peninsula and Kangaroo Island ; Tasmania.

Adult male. Entire crown of head and nape, cheeks including the lower eyelid, mantle, and upper back cobalt-blue ; lores, a line above the eye, including the upper eyelid, sides of face, sides of neck, and a band across the hind-neck black like the upper wing-coverts, lower back, rump and upper tail-coverts, and a narrow band across the breast ; outer aspect of flight-quills viriditer-blue, inner webs blackish-brown with whitish margins ; tail purplish-blue, some of the feathers narrowly edged with white at the tips ; throat and fore-neck deep purple ; breast, abdomen, under tail-coverts, and flanks white, more or less tinged with blue on the breast adjoining the black band ; axillaries and lesser under wing-coverts grey, the greater series and inner margins of quills below whitish, remainder of quill-lining dark brown ; lower aspect of tail similar to its upper surface but paler. Bill and feet black, eyes brown. Total length 138 mm. ; culmen 9, wing 57, tail 63, tarsus 29. Figured. Collected on King Island, on the 27th of April, 1914. (bottom right-hand figure.)

Adult female. General colour of the upper surface chocolate-brown, including the top of the head, sides of face, entire back, upper tail-coverts, scapulars, and wings ; inner webs of flight-quills blackish-brown, slightly paler on the edges ; tail much faded, viriditer-blue, some of the feathers whitish at the tips ; lores and feathers surrounding the eye chestnut, the short feathers in front of the eye bristly in texture ; throat, breast, and abdomen greyish-white, inclining to pure white on the middle of the abdomen ; flanks, thighs, and under tail-coverts ochreous-buff ; under wing-coverts and inner margins of quills below cinnamon-buff, remainder of quill-lining dark hair-brown ; lower aspect of tail similar to its upper surface but rather paler. Bill brown, eyes hazel, feet flesh. Total length 130 mm. ; culmen 8, wing 51, tail 65, tarsus 24. Figured. Collected at Selby, Victoria, on the 5th of June, 1911. (bottom left-hand figure.)

Adult male. Fore-part of head, cheeks, including the lower eyelid, hind-neck, and mantle turquoise-blue ; lores, upper eyelid, sides of crown, ear-coverts, sides of neck, hinder-crown, and nape deep black like the back, scapulars, rump, upper tail-coverts, and a narrow band across the breast ; wings rust-brown, some of the median upper wing-coverts tinged with black, outer edges of primary and secondary quills greyish, inner webs of flight-quills hair-brown ; tail purplish-blue ; rictal-bristles black, the short feathers in front of the eye bristly in texture ; throat and fore-neck deep purplish-blue (almost black) ; breast, abdomen, sides of body, and under tail-coverts whitish, thighs rufous-buff ; under wing-coverts rufous-buff ; flight-quills below hair-brown with buffy-white margins ; lower aspect of tail similar to its upper-surface but paler. Eyes brown, legs light brown, bill black. Total length 122 mm. ; culmen 9, wing 48, tarsus 24. Figured. Collected at Ourimbah, New South Wales, on the 18th of November, 1911. (top left-hand figure.)

Adult female. General colour of the upper-surface rust-brown, including the top of the head, sides of face, back, wings, and tail ; inner webs of flight-quills hair-brown margined with buffy-white ; tail similar to the back, some of the feathers slightly edged with white at the tips and inclining somewhat to lavender-blue ; lores and feathers surrounding the eye chestnut ; throat and under-surface white tinged with grey, the grey becoming more pronounced on the sides of the body ; thighs cinnamon-rufous ; under wing-coverts and axillaries cinnamon-buff ; under-

BLUE WREN.

surface of flight-quills hair-brown with buffy-white margins ; lower aspect of tail similar to its upper surface. Eyes dark brown, feet brownish, bill reddish-brown. Total length 133 mm. ; culmen 8, wing 49, tail 58, tarsus 23. Figured. Collected at Orange, New South Wales, on the 13th of July, 1909.

Nest. Oval, with entrance nearer the top. Composed of grass and rootlets and spiders' cocoons, and lined with feathers. 6 or 7 inches high by 3 or 4 wide.

Eggs. Clutch, three or four. White covered with red or brownish-red spots, more on the larger end. 17 mm. by 13.

Breeding-season. July to February.

It is unfortunate that this species should have an involved early history which must be referred to here.

Its beauty appealed to the early *voyageurs*, and the first mention we find of it is in Ellis's *Narr. Voy. Captain Cook*, where on p. 22 he recorded that at Adventure Bay, South Tasmania, they met with "A small bird of the *motacilla* genus with a bright blue head, which we, on that account, called *Motacilla cyanea*."

In the official account of Cook's Voyages, Vol. I., p. 109, is also written "[At Adventure Bay, Tasmania] there are also three or four small birds, one of which is of the thrush kind ; and another small one, with a pretty long tail, has part of the head and neck of a most beautiful azure colour, from whence we named it *Motacilla cyanea*." This account was published in 1784, while Ellis's book had appeared in 1782, and thence Latham in his *General Synops. Birds*, Vol. II., pt. 2, p. 501, 1783, quoted it in connection with his Superb Warbler, figured on pl. LIII. from a specimen in the "Leverian Museum," for which as locality he only wrote : "Inhabits *Van Diemen's Land*, the most southern part of *New Holland*." He also referred to other specimens as follows : "In *Sir Joseph Bank's* collection are some of these birds ; one of which differed from the above."

On Latham's account solely was based Gmelin's name of *Motacilla cyanea*, the only locality reading "Habitat in terra Van Diemen." ; that is, for the Australian bird, as Latham had also cited as a variety *only*, an entirely different Philippine Island bird, and this was also included by Gmelin. It is therefore obvious to the most superficial student of facts that the Tasmanian bird alone could bear the name of "*cyanea*," whether it was credited to Gmelin, Latham, Cook or Ellis. It is a remarkable instance of perversity that, until recently, no reference has been made to this indisputable fact, though Gmelin's name had been used, and the Ellis quotation even given for a form from New South Wales, while a new name was proposed and made use of for the Tasmanian variety.

Only a few months after the appearance of Gmelin's proposal, this bird was figured in the *Naturalists' Miscellany* under the name of *Motacilla superba*, and the vernacular of Superb Warbler was attached to it, a name ever since used

THE BIRDS OF AUSTRALIA.

for this species and its allies. Shaw, Keeper of Zoology of the British Museum, proposed this name, and it was used a little later in the account of the birds in White's *Journal of a Voyage to New South Wales*, where however two different birds were figured; this fact was apparently recognised, as the explanation reads: "This beautiful species is generally found in the state described in the specific character; but it appears to be subject to great variety, two of which are exhibited." These were distinguished as two distinct species by Vigors and Horsfield later. It may be due to this confusion that Gould proposed a new name for the Tasmanian form, restricting *cyaneus* to the mainland race, as he wrote under the latter name: "Of the lovely group of birds forming the genus *Malurus*, the present species is the oldest known, being that described and figured in White's *Voyage to New South Wales*, under the name of Superb Warbler, a term by which the bird is still familiarly known in Australia."

Gould's notes are good and full of interest. "It is abundantly dispersed over the eastern portion of the country, and I observed it to be equally numerous on the plains of the interior; but how far its range may extend northwards, can only be determined when those parts of the continent shall have been fully explored. I killed many specimens in South Australia which I formerly believed to be identical with the present bird; but on a recent comparison, I find them to be more nearly allied to the *Malurus longicaudus*; a further knowledge of the South Australian bird is therefore necessary, before I can determine to which it is referable, or if it may not be distinct from both. The *Malurus cyaneus* gives preference to those parts of the country which are thinly covered with low scrubby brushwood, and especially to localities of this description which are situated near the borders of rivers and ravines. During the months of winter it associates in small troops of from six to eight in number (probably the brood of a single pair), which continually traverse the district in which they were bred. At this period of the year the adult males throw off their fine livery, and the plumage of the sexes then becomes so nearly alike that a minute examination is requisite to distinguish them. The old males have the bill black at all seasons, whereas the young males during the first year, and the females, have this organ always brown; the tail-feathers also, which with the primaries are only moulted once a year, are of a deeper blue in the old male. As spring advances, the small troops separate into pairs, and the males undergo a total transformation, not only in their colour, but in the texture of their plumage; indeed a more astonishing change can scarcely be imagined. This change is not confined to the plumage alone, but extends also to the habits of the bird; for it now displays great vivacity, proudly shows off its gorgeous attire to the utmost advantage, and pours out its animated song unceasingly, until the female has completed her task of incubation, and the craving appetites

BLUE WREN.

of its newly-hatched young have called forth a new feeling, and given its energies a new direction. During the winter months no bird can be more tame and familiar, for it frequents the gardens and shrubberies of the settlers, and hops about their houses as if desirous to court, rather than shun, the presence of man; but when adorned with his summer plumage, the male becomes more shy and retiring, appearing to have an instinctive consciousness of the danger to which his beauty subjects him; nevertheless they will frequently build their little nest and rear their young in the most populous places. The short and rounded wing incapacitates it for protracted flight, but the amazing facility with which it passes over the surface of the ground fully compensates for this deficiency; its mode of progression can scarcely be called running, it is rather a succession of bounding hops, performed with great rapidity; while thus employed its tail is carried perpendicularly, or thrown forward over the back; indeed, the tail is rarely, if ever, carried horizontally. The breeding season continues from September to January, during which period two, if not three, broods are reared; the young of one being scarcely old enough to provide for themselves, before the female again commences laying. . . . The song is a hurried strain, somewhat resembling that of the Wren of Europe. The stomach is muscular, and the food consists of insects of various kinds, collected on the ground, the trunks of fallen trees, etc."

Mr. F. E. Howe has written me from Victoria: "Is very common along the creeks; indeed, in almost any place where there is good cover this useful little bird is to be found. It is said that males in full plumage are to be found at any time of the year, but I have never yet seen a male in its beautiful blue livery after March or before July. Between those months the male is only distinguished by a shade of blue in the tail, but in every other part it resembles the female. As late as September 21st we secured specimens of a *Malurus* just throwing off their winter dress. The making of the nest is divided between the birds, but I have never yet seen a male help in the work of incubation which lasts about thirteen days. The young are born blind and featherless (with the exception of a tuft of down on the crown of the head), the gape is white and the mouth yellow. At a week old the eyes are open and the plumage is well fledged, and they leave the nest in about twelve days."

Mr. Edwin Ashby wrote "Common throughout the Adelaide district especially in the Mt. Lofty Hills. It is also common in all the southern and eastern parts of Victoria. In Kangaroo Island is a larger and more robust bird. The blue is of a slightly deeper shade. I consider it intermediate between the mainland form and that called by Campbell *M. elizabethæ* from King Island, Bass Straits. I cannot perceive sufficient difference to deserve distinction of the latter as a separate species."

THE BIRDS OF AUSTRALIA.

Mr. Thos. P. Austin has written me from Cobbora, New South Wales :
“ During the first nine years I lived here, I did not see a *Malurus* of any species in this district, but since then, the present species has been decidedly on the increase. Mostly met with along the banks of the Talbragar River, and about my house. They keep in small flocks of from three to half a dozen birds, and are polygamous in habits. The males are very pugnacious, and fight every time they meet. As one family always lived in my garden, and another at a dam only about sixty yards away, the two males were often in sight of each other, and I have witnessed many battles, and eventually the group at the dam departed altogether, but the others are still in the garden, where they rear a brood (only one) of young every year, but those along the river mostly have two or more broods each season. The males change their brilliant plumage to the same brown colour as the females every year about March or April, but can always be identified by the dark blue tail and black bill. The male in my garden at the present time (June) is in brown plumage. I am unable to say how long they retain this winter coat, but I have noticed that once they start to change their plumage, either for winter or summer, it is done wonderfully quickly, being completed within less than a week. They look extraordinarily little creatures just about the period when the change is half completed. They have a very long breeding season, as I have examined nests containing eggs from the first week in September till the middle of January, and the clutch is usually three or four.”

A. G. Campbell contributed an article to the *Emu* (Vol. V., p. 152, 1906) on “The Moulting of the Blue Wren” which may be referred to, but it is now certain from the varied accounts that the Blue Wren does moult into winter plumage, with some unaccounted exceptions, though even A. J. North disputed this and definitely stated that they did not change when once the full plumage was assumed. I record my correspondent's views on this subject which may be considered settled.

Captain S. A. White has sent me the following note. “I have many families of *Malurus cyaneus leggei* in the garden under observation all the year, and I think the following would apply to most species. In the first place these birds are not polygamous, several birds of both sexes may help to build a nest, but only one female lays in it, the male bird being very devoted during the time of incubation, keeping in close attendance, and often feeding his mate on the nest. They will often build a nest and when completed discover it is too exposed, or for some other reason pull it down and rebuild it in another locality. The nest is composed of grass, fibres and many other materials, lined with feathers; the eggs are three to five in number, four being the usual clutch; the young are hatched almost naked, and several birds of both sexes will assist

BLUE WREN.

in the bringing up of the young. They nest from September to December, and nests are placed in a variety of positions, from near the ground, sometimes right on it, to twenty feet up. The males are very pugnacious during the breeding season, and will grasp one another with their little claws and roll over and over on the ground uttering shrill cries of rage all the time. The males also go through some strange antics to attract the females; they will erect their mantles and puff out their throat feathers, depress their tails, cant over on one side and run round and round. The majority of the males moult twice in the year; after breeding time, and the young birds have left the care of their parents, the males begin to look dull, the brown patches appear, and in about fourteen to sixteen days they have become quite brown, and most of them have lost all traces of blue by March, yet strange to say, there is a male here and there, say one in twenty, that is in bright blue plumage. I believe some of these birds which have moulted early, change in May again into the blue livery, but the majority go on to July or August, when the dark patches begin to appear on the forehead and throat, then rapidly increase till they cover the whole of the body. If cats are not kept, they become very fond of human habitations and are very tame, taking breadcrumbs, thick cream and the like from the hand. They are very local birds, and a pair will remain in one part of the garden for years, and build their nest within a few yards of a given spot each year, the young accompanying the old birds during the winter, but as soon as the following nesting season approaches the old birds drive the young ones off, and as a rule, these do not go far off, but take up a locality to their liking not far away. They bring up two and sometimes three broods in the year. Their notes consist of a feeble little trill while feeding or hunting about for food, which is chiefly found on or near the ground, a note of alarm which is shriller, and the male birds very sweet but feeble little song at nesting time. *M. c. cyaneus*. This charming little bird is dispersed almost all over Tasmania, and I have met with it in a variety of situations, on the plains, in the mountain ranges, in dense scrub and forest land, and out in the open country; the habits are the same as those of the mainland bird, also the note. *M. c. samueli*. This bird was very numerous on Flinders Island during our visit, but although it is of a distinct shade of blue no difference was found in the habits or note. *M. c. elizabethæ*. This bird was met with in many parts of King Island during my visit, but habits and note seem same as with all the others. *M. c. henriettæ*. Widely distributed over Victoria, and I have met with it in almost every locality visited. *M. c. leggei*. These birds are thinly distributed in the mangroves along the Port Adelaide River and also along the coast-line where the mangroves abound. This to my mind is the largest and most richly coloured of the group. *M. c. ashbyi*. This subspecies keeps fairly well to the coast-line

THE BIRDS OF AUSTRALIA.

of Kangaroo Island, and round the lagoons where the tea tree abounds, small parties of five or six being often seen hopping over the damp mud on the edges of the lagoons."

Mr. E. J. Christian has written me: "It is frequently seen in the south (of Victoria) with four or five hens or young males. The greatest number I have ever seen was seven in the flock. They are hardly ever still, and can generally be seen in any southern hedge. If they can't be seen, the plaintive notes of the hen can be heard. Now and then the cock breaks out into a lovely whistle. In winter the cock seems to be like the hen, except the tail which remains bluish, generally pale and dull. In 1905 I noticed the first male in full plumage on August 2nd. In 1906, June 21st, I noticed first male with blue tails, getting bright blue. July 6th: Some males with brighter tails, no other parts blue. Sept. 6th: Males in full summer plumage. These notes were taken near Booroondara, 9 miles S.E. of Melbourne. In the Botanical Gardens, Melbourne, on Sept. 10th, several birds had blue heads only, brown bodies with blackish streak appearing. On the 12th, blue head and tail; 17th, blue head, tail and part of mantle; 24th, half summer plumage and by the end of the month in full summer plumage. These birds seem to keep to their own particular part of the garden. On Sept. 29th I was again in Booroondara, and the Wrens there were in various stages of summer plumage, not so forward as in Melbourne, some only with the tail blue. That day I noticed a hen with a white throat. The birds seem to leave Melbourne during the summer, and while they are nesting, returning in numbers in late autumn. In 1906 they began to come back in numbers on April 19th. This bird can often be heard singing at night-time, and on April 29th, I heard one singing at midnight on a moonless night. They are very valuable birds, devouring insects which live on fruit trees. Their favourite insect seems to be a small white moth which lives on the lawn, they run along and frighten it, and with lightning rapidity seize it. The male will often fly along parallel with the ground, with tail straight out behind him, and thus frighten the moths. While nesting is going on, generally about September, the male becomes very pugnacious and will fly at anything, even his own reflection in a window."

Mr. Tom Tregellas, after whose wife the Victorian bird was called, has sent me the following account: "Throughout the year these Wrens are found in secluded spots in the bush, but on the approach of the nesting season many couples leave their haunts and sojourn for a while in the vicinity of houses and gardens, where they build their nests and rear two broods of young. In many of our suburban gardens they may be found nesting, usually in the ivy or creeper round the dwelling, and they lose all fear when in contact with civilisation. In the bush the nest is found in all positions from resting on the bare ground

BLUE WREN.

to the height of four feet. I never found them any higher. The majority I have found on the ground beneath grass and tussocks. As to the question whether the male changes his plumage with the seasons, my observations suggest that after three years he does not. It seems to be only the youthful male that changes, and I have found these in all changes of plumage from brown, grey and slate, to the beautiful metallic blue of the adult bird. Even when maturity is reached there is a difference of shade in some of the males, and it appears that the brightest birds have the best following. Never more than one hen bird is found in company with the male in our gardens, but frequently in the bush as many as six or seven are found. There are always more females than males to be seen in the bush, and the male is always the last to leave cover when flitting from scrub to scrub or from one feeding ground to another. Probably he knows his colour is an attraction to hawks or other birds of prey, who show him no mercy, and for that reason makes the best of his opportunities. I have never discovered that the male assists in building more than one nest, though he is credited with being a mormon. At Wonga Park on Nov. 1st, I caught a young Wren just leaving the nest. Its markings were: Legs, feet and bill flesh-coloured, gape cream, irides brown, feathers on head, back, wings and tail ashy-brown, breast fawn. All the males have black beaks and the females red."

Mr. Frank Littler's notes on the typical Tasmanian form read: "Only inhabits Tasmania, and is more bulky in build and the blue markings richer than the mainland form. May 20th: Wrens have lost their summer coats. July 10th: Noticed a male in summer plumage, the first this spring. Evidently it had only recently acquired it, as the colour was not complete, the grey feathers not being all moulted out. July 1st (next year): Many of the Wrens round Launceston have never moulted, but still retain their blue plumage. The previous year it was at a much earlier date that they all moulted, in fact, by the 14th July the majority were regaining their pretty coats. The following year, on May 5th, a male in the garden, still in summer plumage, although all others I had observed had acquired their winter dress. . . . Young out of the nest, but still being fed, were much lighter in plumage than the adult female. . . . The male struts round with his tail erect, along and over fallen logs he proceeds, darting suddenly to the ground for some titbit, back again on to the logs, now perching on a stump to pour forth his little song, then once more all on the alert, darting at some fly and poking his little beak into every crack and crevice, flitting his tail all the while. When in the scrub, it prefers to use its legs when moving from place to place; its power of running is very great; it is as nimble on its feet as a mouse, in fact it looks like one when seen a few yards off, as it scurries over and under logs, etc. The powers of flight

THE BIRDS OF AUSTRALIA.

are rather feeble and only resorted to when desirous of moving from one locality to another or when suddenly frightened. The song is weak, but is a rather pleasing run of notes, usually uttered when perched on some eminence."

Mr. H. Stuart Dove also sent me some interesting nesting notes from which I quote: "It is often stated that our 'Blue Wren' is polygamous; I am convinced that this is not so. The number of sober-coloured individuals which are often seen with one gorgeous male are simply the young of both sexes, which keep together and in company with their parents for some time after leaving the nest, and have been mistaken for a 'harem.' The adults are in pairs only when nesting-time comes round again. . . . Finished building on 20th October, 4 eggs on 24th, laid on successive days and female sitting. The four eggs were hatched on November 7th, giving fourteen days' incubation; young were blind and naked. On 13th November the eyes were open, head, wings and parts of body well covered with sprouting quills, having blue-black appearance. The young had left the nest on morning of November 17th, giving ten days hatching to flying. . . . Either the female or male *Malurus* was at the nest about every three minutes in the morning with food for young, and I saw the female carry away excreta from nest in her bill, carrying it through a space in a tall Blanket wood opposite nest and dropping it on further side. There were two males about the nest, but I only saw one feed the young."

Mr. J. W. Mellor writes: "These birds are very plentiful in Tasmania, in any thicket or bushy country their pleasing little twitter may be heard, or the song of the male bird as he calls to his mates, several of which seem to go with one male as is the case with other members of the genus. I saw *M. elizabethæ* on King Island; they were in the low bushes and thick undergrowth about the back of Currie Harbour; they were lively little birds, but like the other members of the genus, I brought them out of their hiding places by making a squeaking noise with my lips; they are inquisitive little fellows, and want to know what is going on; the females come first for curiosity, and then the males will make their appearance. Their notes are the same as those uttered by the Tasmanian or mainland representatives."

Dove published a complete account of the Tasmanian Blue Wren in the *Emu*, Vol. IX., p. 157, 1910, which may be referred to for further details, but space forbids the complete quotation of the very numerous notes in that periodical about this popular little subject.

The technical history of the forms of this species is complex and interesting, and the earlier part has already been noticed in detail, so will only be here outlined. The earliest Blue Wren was described from South Tasmania, but almost simultaneously it was figured from Sydney, New South Wales. This did not

BLUE WREN.

matter much until forms were separated, and this did not take place until Gould pointed out that the Tasmanian bird differed especially in its longer tail, and therefore called it *longicaudus*. Previously an entirely different bird had been named *Malurus longicaudus*, so that Gould's name was invalid. This was noticed when Sharpe monographed the genus in the *Catalogue Birds British Museum*, and not noticing the confusion in the type localities, named the Tasmanian bird *gouldi*. A couple of years afterwards he noted the different coloration shown by birds from South Queensland, and distinguished these as *cyanochlamys*, still accepting Sydney birds as typical *cyaneus*. Twenty years later Campbell named the bird living on King Island, Bass Straits, as *Malurus elizabethæ*. Then North, investigating the history of the species, observed that the first form to be named was the Tasmanian, and as it was a new discovery, had no hesitation in rejecting the name in use, *gouldi*, for the correct name *cyaneus*, and superseding the well-known name for the mainland form by a new one, *australis*. These were all distinct, but were just as obviously only subspecific forms of one species, and so I treated them in my Reference List in 1912. The examination of a fair number showed that other subspecies were just as definitely marked, so that I ranged seven subspecies as follows :

Malurus cyaneus cyaneus (Gmelin).

Tasmania.

Malurus cyaneus cyanochlamys Sharpe.

South Queensland.

Malurus cyaneus australis North.

New South Wales.

Malurus cyaneus henriettæ Mathews.

"Differs from *M. c. cyaneus* in its shorter tail; from *M. c. australis* in its coloration, that subspecies approaching *M. c. cyanochlamys*, while this agrees more closely with that of the typical subspecies. (Olinda), Victoria."

Victoria.

Malurus cyaneus leggei Mathews.

"Differs from *M. c. henriettæ* in its lighter coloration, though darker than *M. c. australis*. Point (error for Port) Adelaide, S.A."

South Australia.

Malurus cyaneus ashbyi Mathews.

"Differs from *M. c. leggei* in its larger size and darker coloration on the back. Kangaroo Island."

Kangaroo I., South Australia.

Malurus cyaneus elizabethæ Campbell.

King Island, Bass Straits.

THE BIRDS OF AUSTRALIA.

At the same time, Miss Fletcher wrote to me that the Blue Wren she saw in North Tasmania was obviously different from the one she knew in South Tasmania, and she sent me specimens. These confirmed her observations and I named the form

Malurus cyaneus fletcheræ.

"Differs from *M. c. australis* in its shorter tail; the blue on the throat is darker, and the blue band on the back is lighter. Ringarooma."

North Tasmania.

I also distinguished

Malurus cyaneus samueli.

"Differs from *M. c. cyaneus* in having the throat and breast much darker blackish-blue, it is also smaller." Flinders Island, Bass Straits.

With regard to the distinctions between these forms, A. G. Campbell wrote "*Malurus gouldi* (Long-tailed Wren). It is evident, from a number of skins collected in Victoria, that the Tasmanian form, with its dusky under parts and touches of light blue on the chest, is found on the mainland. Several shades are observable in the mantle blue; occasionally one is found darker even than the insular specimen. The measurements given for Tasmania (total length 5·3, culmen ·32, wing 2·1, tail 2·7, tarsus ·9), were taken from birds shot at Hobart. The Launceston type is smaller in all but the bill (total length 5·1, bill ·38, wing 2·1, tail 2·5, tarsus ·9). The typical *M. cyaneus*, found to the north of the Dividing Range in Victoria, is invariably white on the under parts, and with light brown primaries, while *M. elizabethæ*, the other extreme, from King Island, is distinguished by the richness of its colouring, and by the Prussian blue on the outer edges of black primaries."

Years afterwards Captain S. A. White wrote of the birds at Mallacoota, Victoria: "Very plentiful. The blue on the head and mantle of these birds is very pale, and approaches the colour of *M. c. cyanochlamys*. Many of these birds were nesting." Again, reporting about the birds of Lake Victoria and Murray River, Captain White states: "Often met with out in the flooded country, living in the tops of the lignum bushes, which were almost submerged. Upon comparison they seem to approach the Victorian bird more than the South Australian form, the blue being darker in the latter bird." Of the Flinders Island form Captain S. A. White notes: "Blue Wrens were plentiful amid the thick undergrowth on the borders of swampy ground, and in the tangled mass of giant bracken on the hill and mountain side. Colour of mantle and crown of head is a distinct shade of blue to *M. cyaneus*."



H. Grönvold. del

Witherby & Co

MALURUS SPLENDENS.
(BANDED WREN).

MALURUS MELANOTUS.
(BLACK-BACKED WREN).

MALURUS MELANOTUS.

BLACK-BACKED WREN.

(PLATE 460, bottom figures.)

MALURUS MELANOTUS Gould, Birds Austr., pt. III., June 1st, 1841: Western Belts of the Murray, South Australia.

*Malurus melanotus** Gould, Birds Austr., pt. III. (Vol. IV., pl. 20), June 1st, 1841; *id.*, Proc. Zool. Soc. (Lond.), 1840, p. 163, July, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 322, 1865; Diggles, Orn. Austr., pt. v., 1866; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 288, 1879; Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 1145, 1887; *id.*, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 16, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 169, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 210, 1904; Mathews, Handl. Birds Austral., p. 78, 1908; Howe, Emu, Vol. VIII., p. 133, 1909 (Vic.); *id.*, *ib.*, Vol. IX., p. 231, 1910 (Vic.); Sullivan, *ib.*, Vol. XI., p. 119, 1911 (Vic.); Wilson, *ib.*, Vol. XII., p. 35, 1912 (Vic.); Jackson, *ib.*, p. 101 (N.S.W. ?); Stone, *ib.*, p. 114, (Vic.); Chandler, *ib.*, Vol. XIII., p. 41, 1913 (Vic.); S. A. White, *id.*, *ib.*, pp. 121, 127, 1914 (Vic.); Howe and Tregellas, *ib.*, Vol. XIV., p. 71, 1914 (Vic.); Ashby, *ib.*, Vol. XVII., p. 220, 1918 (S.A.); Stone, *ib.*, Vol. XVIII., p. 124, 1918 (Vic.); Ashby, *ib.*, Vol. XIX., p. 73, 1919; A. S. Le Souëf, *ib.*, Vol. XX., p. 143, 1921 (W.A.).

Malurus callainus Gould, Proc. Zool. Soc. (Lond.), 1867, p. 302, Aug. 1st: South Australia =Eyre Peninsula; Gould, Birds Austr. Suppl., pt. iv., pl. 23, Dec. 1st, 1867; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 289, 1879; Ramsay, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. I., p. 1145, 1887; *id.*, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 16, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 170, 1901; *id.*, Emu, Vol. I., p. 65, 1902; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 211, 1904; Mathews, Handl. Birds Austral., p. 78, 1908; S. A. White, Emu, Vol. XIII., pp. 18, 27, 1913; *id.*, *ib.*, Vol. XVIII., p. 197, 1919; Ashby, *ib.*, Vol. XIX., p. 73, 1919.

Malurus whitei Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 171 before April 4th, 1901: new name for *Malurus callainus* Gould; *id.*, Emu, Vol. I., pt. 2, p. 65, Jan., 1902: Interior of Australia, not *whitei* of earlier entry; *id.*, *ib.*, Vol. II., p. 229, pl. x.,

* Also spelt *melanonotus*.

THE BIRDS OF AUSTRALIA.

1903; Hall, Key Birds Austr., 2nd ed., p. 110, 1906; Mathews, Handl. Birds Austral., p. 78, 1908; Mellor, Emu, Vol. XII., p. 185, 1913.

Malurus melanotus melanotus Mathews, Nov. Zool., Vol. XVIII., p. 358, 1912; *id.*, List Birds Austr., p. 224, 1913.

Malurus melanotus victoriæ Mathews, Nov. Zool., Vol. XVIII., p. 358, Jan. 31st, 1912: Carina, Victoria.

Malurus melanotus whitei Mathews, *ib.*

Malurus melanotus callainus Mathews, *ib.*; *id.*, List Birds Austr., p. 224, 1913.

Malurus melanotus germaini Mathews, Nov. Zool., Vol. XVIII., p. 359, Jan. 31st, 1912: Port Germain (*recte* Germein), South Australia.

DISTRIBUTION. South-western Queensland and Western New South Wales, Victoria and Central and Southern Australia reaching to Western Australia border.

Adult male. Crown of head, nape, hind-neck, mantle, back, and upper tail-coverts turquoise-blue; lores, a line behind the eye extending along the sides of the crown, and a band across the hind-neck, reaching to the sides of the neck, velvety-black like the band across the fore-neck, back and rump; scapulars black with blue tips to the feathers; upper wing-coverts and outer aspect of primary and secondary-quills dull green more or less tinged with blue on the median and greater coverts, some of the lesser, or marginal series bronze-brown, inner webs of flight-quills dark hair-brown; tail dark greenish-blue with whitish tips to some of the feathers; sides of face including the eyelids very pale turquoise-blue; throat and fore-neck cobalt-blue; breast, abdomen, thighs, under tail-coverts, and sides of body similar but rather paler with a few yellow feathers intermixed on the abdomen; axillaries and marginal under wing-coverts greenish-blue, the greater series and inner margins of quills below whitish-buff, remainder of quill-lining hair-brown; lower aspect of tail similar to its upper surface but somewhat paler. Bill and feet black, eyes brown. Total length, 136 mm.; culmen 8, wing 51, tail 59, tarsus 24. Figured. Collected at Port Germein, South Australia.

Adult female. General colour of the upper surface mouse-brown including the top of the head, sides of face, sides of neck, hind-neck, entire back, upper tail-coverts, and wings; outer edges of flight-quills greyish-green, inner webs hair-brown with pale margins; tail greenish-blue with white tips to some of the feathers, with dark obsolete cross-bars; lores and eyelids pale rust-colour; throat, breast, abdomen, sides of body, thighs and under tail-coverts buffy-white; under wing-coverts pale cinnamon-buff; under surface of flight-quills hair-brown with pale margins; lower aspect of tail similar to its upper surface but rather paler. Bill reddish-brown, eyes brown, feet black. Total length 116 mm.; culmen 8, wing 51, tail 56, tarsus 23. Figured. Collected in the Everard Ranges, Central Australia, on the 9th of August, 1914.

Adult male. Head, mantle and upper back, upper tail-coverts, and breast dark turquoise-blue; ear-coverts paler and inclining to silvery-blue; chin, throat, and fore-neck ultramarine-blue; lores black, as also a narrow band across the chest which runs up the sides of the neck and joins a broad black nuchal collar; middle of lower back also black; wings pale brown with a few blue feathers appearing among the coverts; some of the outer quills with pale edges to the outer webs; tail-feathers dark bluish-green with white tips and obsolete wavy cross-bars; abdomen and under tail-coverts whitish with blue feathers appearing on the former; under wing-coverts sandy-rufous. Total length 124 mm.; culmen 8, wing 50, tail 55, tarsus 22. Collected in the Musgrave Ranges, Central Australia. Type of *M. musgravi*.

BLACK-BACKED WREN.

Nest. Dome-shaped, with entrance near the top. Composed of grass, wool, and bark, and lined with fine grass, wool, etc. 5 inches high by 3 to 3½ wide.

Eggs. Clutch, three to four. White to pinkish-white blotch or spotted with purplish-red to red, more at the larger end, where sometimes a zone is formed. 16-18 mm. by 11-12.

Breeding-season. September to November.

GOULD'S account of this species, one of his own discoveries, reads: "The Belts of the Murray in South Australia were the only places in which I observed this species; but, although it was tolerably abundant there, it was so extremely shy and distrustful that specimens were obtained with the greatest difficulty. It was most frequently observed on the ground, particularly in the small open glades and little plains by which the outer belt of this vast scrub is diversified. The period of my visit was in winter; consequently the specimens I collected were all out of colour, or, more properly speaking, divested of the rich blue and black plumage, in which state a single specimen was afterwards forwarded to me by one of the party that accompanied His Excellency Colonel Gawler and Captain Sturt, when those gentlemen visited the Murray in 1839; and other examples have since been received. It is a most interesting species, inasmuch as it possesses characters intermediate between the *M. cyaneus* and *M. splendens*, having the blue belly and conspicuous pectoral band of the latter and the black back of the former; from both, however, it differs in the length of its toes, which are much shorter than those of its near allies; this difference in structure exerts a corresponding influence upon its habits and actions, for while the others run over the ground with great facility, the Black-backed Superb Warbler far exceeds them in this respect. Instead of exerting any power of flight, those I saw effected their escape by the extraordinary manner in which they tripped over the small openings and through the scrub, each troop appearing to have a leader, and keeping just beyond the range of the gun."

Mr. F. E. Howe has written me: "I first met with this beautiful bird at Pine Plains, and since at Carina and Kow Plains. Mr. Ross and I had good opportunities to notice that at every nest (and we found a good number), only one male and a single female were about. This species keeps to the more open and stunted mallee, and on the plains where turpentine and other bushes abound. We also noticed a good many in the salt and blue bushes. Some we found building, and only the female was noticed at work, but the male was observed to accompany her and sing."

Mr. J. W. Mellor's notes read: "*M. melanotus* is found along the Flinder's Ranges near Port Augusta and also farther south, where it inhabits the low bushes along the slopes of the hills and in the sheltered gullies where the

THE BIRDS OF AUSTRALIA.

undergrowth is sufficient to afford shelter. I came across a little covey of *M. whitei* on Aug. 26th, 1911, on the flat country near Port Germein, South Australia, between the Flinder's Ranges and the shores of St. Vincents Gulf, close to the original locality in which Mr. White first discovered it; the country was also similar, there being a profusion of blue bush and salt bush and here and there patches of tall mallee, and in the low bushes the birds were located. The covey consisted of a fine old male in full breeding plumage and very shy; there was also a couple of young males out of plumage and several females; these females differed in colour from those of *Malurus assimilis*, of which there were plenty about. The male was extremely shy and kept a long distance off, darting through the mallee very swiftly, and as I was alone I had great difficulty in securing it." These two notes refer to the same form, which according to his later note is *callainus*. Sullivan has noted that the tail-feathers of the female are blue, and this is not a feature of the winter plumage of the male as suggested in the case of *M. cyaneus*.

Wilson has recorded: "The beautiful plumage of this and the following species is one of the first things to catch the eye of the ornithologist visiting the mallee. Although occasionally found in the porcupine grass country, it usually inhabits the turpentine-bush and low scrubby growths of the flats, where it is a very common bird. Several skins showing the interesting changes of plumage of the male bird were secured."

Captain S. A. White has written: "I was not at all surprised to find this glorious little bird, for it was from the Murray mallee belts that John Gould procured his type. On comparing this bird with skins procured by Mr. A. J. Campbell from the mallee in Victoria they are found to be identical."

Captain S. A. White sent me a long note which I here include, though part has since been published. "This beautiful bird was of the greatest interest, and when I shot the first specimen I was overcome with memories of the past, for it was in 1865, some five years before I came into existence, that my late father, the intrepid ornithologist and explorer Samuel White, discovered this gem of bird life not more than 30 or 40 miles from where we must have camped, and it was from one of two specimens which he there secured that John Gould described the bird in his *Supplement*, pt. IV., where he remarked: 'that this gentleman may again visit the home of the species and obtain the female is my ardent wish . . . and I have no doubt he will do so; for I have reason to believe that no one of my correspondents in Australia is more keenly alive to the interests which attaches to our favourite branch of science—ornithology.' The late Samuel White did not return to the haunts of this bird, but forty-seven years later his son and daughter-in-law did, and procured

BLACK-BACKED WREN.

specimens of both sexes. It may not be out of place to state here that my father left home in 1865 on an expedition to the North and North-west of Adelaide in pursuit of the science of Ornithology. He took with him a dray drawn by two horses, and one man. On the dray, besides provisions and outfit, he placed a light flat-bottomed boat which was intended to be used on swamps, lakes, rivers, or arms of the sea which might be met with on the way. The route lay along St. Vincent's Gulf, passing its head; this exploring ornithologist pushing on over a rough and scrubby country, working amongst the birds on his way, till he reached a spot on Spencer's Gulf some distance beyond the indent on the coast which is now known as Port Germein. The undaunted explorer then determined to explore the western side of the Gulf, a hazardous task in view of the crossing the head of gulf, a distance of between twenty-five and thirty miles, in a frail flat-bottomed boat. He well understood that the Flinders Range on the one side, and the hills on the other, form with the ever narrowing gulf a natural funnel, up which the winds from the ocean are forced with great velocity. The journey up to this was considerably over 300 miles, for it must be understood that the country at that time was in its virgin state, and a way had to be forced through the dense scrub and over rocky ranges. Rigging up a sail and taking advantage of a favourable wind, this pioneer left his manservant in charge of the horses and cart, and set out in his little craft alone. All went well on the trip over and many birds were collected, amongst them this new *Malurus*, and I have heard my father say in later years that he procured the birds (some eight to ten skins comprising both sexes) by placing his hat upon the ground, and when the wrens approached the strange object to investigate, he secured them. On his way over the gulf head again a sudden squall capsized the little boat, and guns, sextant and specimens—all were lost save a small box containing a few bird skins which he grasped and held; he clung to the upturned boat and drifted till within two miles of the shore, when he left the boat, but still sticking to the box he swam ashore, as he was a very powerful swimmer. In the box were two males of the new *Malurus*, which were sent to Gould and described with the name of *M. callainus*. It is, from this account, certain that the birds were obtained on the western shore of the Gulf and not at Port Germein, as has been suggested.

“The first of these birds met with by my wife and myself on this trip was after passing through ‘Lincoln Gap’; we had camped over night, and in the early morning I went out with the gun, and when passing over a flat-covered-in large salt bush around which were some fine bushes of scrubby mulga; and from out of these bushes darted a small party of wrens, seemingly some females or out-of-plumage males. They were into the giant salt bush and gone in an instant, and although we could hear their faint little notes of

THE BIRDS OF AUSTRALIA.

alarm we could not dislodge them. Returning to this spot again later in the day, a party of wrens was surprised, and we secured a fully adult male, some immature males and a female, which proved to be *M. callainus*. It was several days later and still further south, just on the edge of the malla (which extends down to the head of Eyre's Peninsula), that we again came in touch with this bird, and this time they were in a large party, but very shy, in a dry watercourse, the bed of which was covered in deep, loose and coarse sand, and in this watercourse, which was five to six hundred yards wide, grew many of the picturesque drooping foliaged 'scrubby mulgas.' These bushes were in a mass of blossom, and the thick foliage gave good shelter to the *Maluri* which darted from bush to bush in follow-my-leader fashion; when one broke cover the others followed—sometimes a beautiful male bird would mount to the top of the bush far out, or extend his glorious mantle, utter a short trill and dart into cover again. There was no salt bush for some little distance from here, and I am of the opinion that this bird favours the low thick scrub, and that it only takes to the salt bush, if near, to hide when hard pressed. The next time we met *M. callainus* was on our return journey just before leaving the Ranges, when we again found it amongst the scrubby mulga.

“ Dr. Morgan found this bird nesting about this time or a little previous to it (September), at the south end of Lake Torrens, but we did not come across a nest; we put that down to the fact of rain having fallen early in the season around the southern edge of Lake Torrens, and Dr. Morgan informs me that they did not have the very strong gales which we experienced during the whole of our trip further west.”

He later added: “ The type locality is the western side of Spencer's Gulf, and that from Port Germein, on the eastern side, has been regarded as a distinct subspecies, but this seems a very doubtful one. Apparently *M. callainus* ranges westward right to the West Australian border and inland as far north as I have explored. *M. melanotus* was recorded by North from the interior, but this bird was intended.”

The restricted range of this species still shows the variation so noticeable in this group. Thus Gould described the bird from the Western Belts of the Murray, South Australia, and then later described a new species collected by Mr. Samuel White, *M. callainus*. Campbell in his *Nests and Eggs* stated that a better name than *callainus* would have been *whitei*, and the next year proposed *M. whitei* for a bird he considered different from *M. callainus*.

In my Reference List I admitted five subspecies writing:

Malurus melanotus melanotus Gould.

South Australia.

Malurus melanotus victoriae Mathews.

BLACK-BACKED WREN.

"Differs from *M. m. melanotus* in its larger size and deeper purple coloration. Carina, Victoria."

Victoria.

Malurus melanotus whitei Campbell.

South Australia.

Malurus melanotus callainus Gould.

South Australia.

Malurus melanotus germaini Mathews.

"Differs from *M. m. callainus* in its throat being darker purple and its head, back, and upper tail-coverts bright peacock-blue, not silvery-blue, and especially in having the abdomen purplish-blue; in the type this is greenish-blue. Port Germein, South Australia."

NOTE.—With the type of both *M. melanotus* and *M. callainus* in front of me, and having also notes on the type of *M. whitei*, which I have also handled, and my own series, I am compelled to admit four forms of this species as inhabiting South Australia, but I am unable to indicate the distribution of the subspecies.

The researches of Captain S. A. White, the son of Mr. S. White, the collector of *M. callainus* Gould, prove that the type of *M. callainus* came from the western shore of the Gulf and not Port Germein as I gave in my 1913 List.

Thus Captain S. A. White recorded birds from the Musgrave and Everard Ranges as *M. m. callainus*, observing: "I have placed a bird of this genus under the above heading because it resembles that subspecies most, yet it has not the same shade of blue upon the head or mantle, but comes between *M. callainus* and *M. whitei*, approaching the first named more closely. This bird was found all over the country visited, but one could not say in any numbers." Then from the Nullarbor Plains he wrote: "Upon my first trip into the Ooldea country I had seen several parties of brown Wrens, but, do what I could, could not get a glimpse of a blue bird, and from descriptions given me, expected to find a new species. Upon a later trip I secured a full-plumaged male, and found upon comparison that it did not differ at all from skins procured from my father's type locality. The birds were found in small parties in the thick scrub growing on the Ooldea sandhills; they were also observed near Tarcoola."

Mr. J. W. Mellor wrote to me: "Port Germein is the only place that I know of where *M. whitei* is found, as a bird taken from here last year was identified by A. J. Campbell (the describer of the species) as this bird, therefore, my belief is that his locality (interior of Australia) is incorrect. I know that on the west side of Spencer's Gulf the bird is *M. callainus*, north of Port Augusta it is the same, and out north-west it is still the same, as all around it is *M.*

THE BIRDS OF AUSTRALIA.

callainus. I made a special study of this bird on this account. It is very scarce and shy in its habits, being exceedingly difficult to get near as it darts off into the bushes as soon as it sees or hears the slightest movement, or crack of a stick or twig; the full-plumaged males are exceedingly shy and wary. On one occasion I saw two males chasing one another, apparently having a quarrel over some female; they put up their little blue crests and stuck out their ear-coverts and darted across my path like flashes of light, and were gone into the thickets instantaneously. They generally inhabit the thick undergrowth where tea tree or mallee and peppermint meet the blue bush country, and the thick undergrowth of the latter, beneath the higher foliage of the former, affords good shelter, while for a higher perch they fly into the thick bushy-topped tea trees where they are soon lost to view. *M. assimilis* is to be found in the same locality and *M. whitei* is seen in company with them; their call is a silvery warble something like that of *M. assimilis*, but given in a more tremolo voice, giving it a more loose fibre; it seems to be poured forth in a kind of silvery circlet as it were, and lasting for a few moments only, and the bird is off again like the twinkling of an eye; the notes are always made while the bird is on a twig or bough, the head and throat held up and thrown forward while emitting the calls; the hen I also noted made some of these calls like her mate, but not so oft repeated. The old birds were just mating in August, and would probably be breeding soon."

Ashby has lately concluded: "*M. whitei*. Several ornithologists have considered this a good species, and the careful comparison of the material in my hands supported this contention, but I have now had an opportunity of examining seven more specimens of *M. callainus* Gould in Captain S. A. White's collection.

"I find that some of the specimens collected on the west side of Spencer Gulf and the Gawler Ranges so closely approach the Port Germein (east side of the Gulf) form that they are not separable. Those specimens of *M. callainus* collected in the Everard and Musgrave Ranges show more purple in the throat and a deeper blue in the abdomen. The larger material suggests a transition into deeper and more purple shades of blue as the distance from Spencer Gulf becomes greater, and therefore Campbell's *M. whitei* must stand as a synonym of *M. callainus* Gould."

At the present time, with our present knowledge, we then have three well-marked forms and one or two ill-defined and doubtful, thus

Malurus melanotus melanotus Gould.

South Australian Mallee.

doubtfully distinct is

Malurus melanotus victoriæ Mathews.

Victorian Mallee.

BLACK-BACKED WREN.

I would have unhesitatingly accepted the dicta of White and Ashby that these are identical, save that in some cases a series of Mallee birds have absolutely shown differences between the South Australian and Victorian Mallee specimens.

Again doubtful appears

Malurus melanotus germaini Mathews.

Eastern shores of Spencer's Gulf.

This has been accepted under the name *M. whitei*, which is a synonym of *callainus*, but is now doubted by White and Ashby.

Malurus melanotus callainus Gould.

Western shore of Spencer's Gulf to western border of South Australia.

Malurus melanotus musgravei subsp. n. (Described.)

Musgrave and Everard Ranges.

Both Captain S. A. White and Ashby agree that this bird is "more purple on the throat and a deeper blue on the abdomen than *M. callainus*."

Ramsay described the eggs of *M. melanotus* and *M. callainus*, but gave no locality for either and wrote of the latter: "This wren, one of the latest species described by Mr. Gould, is far from rare in the interior; my brother, Mr. James Ramsay, having no difficulty in obtaining as many specimens as I required during one season, both of its nests and eggs, with the birds shot therefrom."

This provides one of the problems that cannot be settled here. What was Ramsay's "interior"? The interior of New South Wales is suggested, whence I have no specimens, but Jackson has recorded *melanotus* from northern interior New South Wales, near the Queensland border. Then North, when he received birds from Central Australia, and apparently with Ramsay's *callainus* under view, named the Centralian birds *melanotus*, which Captain S. A. White states they are not.

Some years ago Mr. J. W. Mellor wrote me: "We had all three species while in Sydney (at the Museum), side by side, and they stand thus—

M. melanotus Dark blue on mantle.

M. whitei Lighter blue on mantle (=germaini).

M. callainus Lightest blue on mantle.

Then *M. melanotus* is lighter than *whitei* on the under-surface blue." This may help to elucidate matters.

Order PASSERIFORMES.

No. 554.

Family SYLVIIDÆ.

MALURUS SPLENDENS.

BANDED WREN.

(PLATE 460, top figures.)

SAXICOLA SPLENDENS Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 197 (pref. June 29th), 1830 : King George Sound, West Australia.

Saxicola splendens Quoy and Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 197, 1830.

Malurus pectoralis Gould, Proc. Zool. Soc. (Lond.), 1833, p. 106, Nov. 18th : Swan River, West Australia ; *id.*, Synops. Birds Austr., pt. I., pl. (8), 1837.

[Not *Malurus pectoralis* Stephens in Shaw's Gen. Zool., Vol. XIII., p. 224, 1826.]

Malurus splendens Gould, Birds Austr., p. iii. (Vol. III., pl. 21), June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 323, 1865 ; Diggles, Orn. Austr., pt. v., 1866 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 289, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 172, 1901 ; Milligan, Emu, Vol. II., p. 71, 1902 ; *id.*, *ib.*, Vol. III., p. 16, 1903 ; H. E. Hill, *ib.*, p. 227, 1904 ; North Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 213, 1904 ; Milligan, Emu, Vol. IV., pp. 6, 9, 1904 ; Lawson, *ib.*, p. 134, 1905 ; Mathews, Handl. Birds Austral., p. 78, 1908 ; Gibson, Emu, Vol. IX., p. 73, 1909 ; Campbell, *ib.*, p. 165 ; Whitlock, *ib.*, p. 201, 1910 ; Mathews, Nov. Zool., Vol. XVIII., p. 359, 1912 ; S. A. White, Emu, Vol. XX., p. 127, 1921 ; Ashby, *ib.*, p. 134 ; Le Souëf, *ib.*, p. 142 ; Mellor, *ib.*, p. 139 ; Alexander, *ib.*, p. 166.

Malurus splendens riordani Mathews, Austral Av. Rec., Vol. I., pt. 5, p. 119, Dec. 24th, 1912 : Yalgoo, West Australia ; *id.*, List Birds Australia, p. 225, 1913.

Malurus splendens splendens Mathews, *id.*, *ib.*

DISTRIBUTION. South-west Australia, mainly coastal from Stirling Ranges round coast to Geraldton.

Adult male. Crown of head, nape, mantle, back, and upper tail-coverts pale cobalt ; lesser upper wing-coverts bronze-green, median and greater series for the most part cobalt-blue with paler margins on the outer webs, outer webs of flight-quills greenish-blue, inner webs hair-brown with pale edgings ; tail cobalt-blue, inclining to greenish-blue at the base, and whitish tips to some of the feathers ; sides of face turquoise-blue ; lores and sides of crown velvety-black, as is also the band that encircles the neck ; throat, breast, abdomen, sides of body, and under tail-coverts cobalt-blue with a few grey and buff feathers intermixed on the lower abdomen, flanks, and

BANDED WREN.

under tail-coverts; thighs greenish-blue; under wing pale buff; under-surface of flight-quills hair-brown with pale margins; lower aspect of tail similar to its upper-surface but paler. Bill black, eyes dark brown, feet and legs very dark brown. Total length 130 mm.; culmen 9, wing 52, tail 64, tarsus 23. Figured. Collected at (Waraya) Yalgoo Gold Field, West Australia, on the 24th of August, 1903, and is the type of *Malurus splendens riordani*.

Adult female. General colour of the upper-surface mouse-brown including the top of the head, entire back, and wings; inner webs of flight-quills hair-brown; tail dull lavender-blue with whitish tips and pale margins to some of the feathers; rictal bristles black with white bases; lores and eyelids chestnut; throat, breast, abdomen, sides of body, thighs, and under tail-coverts pale fawn colour like the under wing-coverts; under-surface of flight-quills hair-brown with pale edges; lower aspect of tail similar to its upper-surface, but paler and having white shafts to the feathers on the basal portion. Bill light brown, eyes deep brown, feet dark brown. Total length 116 mm.; culmen 8, wing 48, tail 60, tarsus 23. Figured. Collected in East Murchison, West Australia, on October 2nd, 1909.

Young males. Very similar to the adult females but the lores not so rufous.

Nest. Dome-shaped, with entrance near the top. Composed of dried grass and lined with finer grass, wool or feathers, 5 inches high by 3 wide.

Eggs. Clutch, three to four. Pinkish-white to white, freckled or spotted with purplish-brown, more on the larger end. 17 mm. by 12.

Breeding-season. (August) October to December.

Quoy and Gaimard, the French exploring naturalists, described this species in 1830 and three years later Gould also named it, but very soon recognised that his species was the same as that proposed by the French workers, and moreover, used the name at once, especially as it was exceedingly appropriate, as his few remarks observe. "The *Malurus splendens*, which may very justly be considered more gorgeous than any other of its race, its whole plumage sparkling with beautiful shining metallic lustre, is an inhabitant of the western coast of Australia, and is, I believe, very generally distributed over the Swan River settlement, where it inhabits scrubby places covered with underwood. Its song very nearly resembles that of the Tasmanian species, *M. longicaudus*."

Mr. Tom Carter has written me "The Banded Wren is given in your 1912 'Reference List,' as occurring generally through West Australia. It is common throughout the south-west, but does not seem to extend to the far inland districts, and was never noted by me in the Gascoyne and northern areas. Its range from the coast is probably about one hundred miles. It occurs at Kellerberin (100 miles inland), and is not uncommon about Albany, but is now not so plentiful as it was ten or twelve years ago (I wonder if this is due to destruction by cats). It was not nearly so numerous about Broome Hill as it is in the moister south-west corner. Near Broome Hill a nest containing four fresh eggs was found Oct. 7th, 1906, and another on Aug. 21st, 1912, with three eggs, but I think the breeding season is usually late, October to December. Young

THE BIRDS OF AUSTRALIA.

birds, almost full grown, were found in a nest at Vasse River in January, 1887. This nest was practically *on* the ground, inside a small bush. The nests are usually built within a foot of the ground. At Broome Hill, January 25th, 1907, two full-plumaged males were observed. Feb. 17/07. Male bird in half-blue plumage. Sept. 4, 1908. In a party of six birds, one male in full plumage and another with blue wings, coverts and tail. Aug. 20, 1910. Male in full plumage. Sept. 27, 1910. A family party of six seen on Pallinup River, one only in fairly complete blue plumage. Nov. 12, 1910. Birds breeding."

Milligan wrote about the Stirling Ranges: "These 'Mormons' were numerous on the heavy soils. I observed them on two or three occasions mount fully fifteen feet high in the saplings. We saw young birds at Tenterden."

Later, reviewing his trip to the Wongan Hills, he observed: "*Malurus splendens* appeared only when the plains were passed and when nearing the Mission Station: . . . continued to Mogumber."

Gibson noted between Kalgoorlie and Euclia: "A few only in the mulga; a rare bird in the interior districts."

Whitlock then found it on the East Murchison, writing: "Rare and very local. Though I heard of blue birds at Lake Way, which came round one's camp, I hardly expected them to be of this species. It was one of the surprises of my trip. I only met with two parties near Wiluna, and another near Milly Pool." Of these specimens Campbell wrote "was smaller in size and more intense in colour than the south-western coastal bird."

Captain S. A. White has recorded from the Margaret River, South-west Australia: "This bird was not nearly so plentiful as the writer expected it to be. In 1889, during my first visit to Western Australia, these birds were exceedingly plentiful. Probably the domestic cat gone wild has accounted for their disappearance. These birds were nesting."

Ashby added: "Numerous and tame at Claremont. It no doubt occurs in low scrub at Geraldton, as it was described to us by local residents."

Mellor noted from the Murchison River district: "One male, in full livery, was seen with several females. This may be Mathews' northern subspecies, *M. s. riordani*."

A. L. Le Souëf wrote: "This splendid Wren was found on the hills close to Perth, occupying sheltered gullies, and also at Geraldton on scrub-covered sand hills."

Alexander: "Resident in the Perth district. Found throughout, but not nearly so common as it is on the Darling Range to the eastward."

I described

Malurus splendens riordani.

BANDED WREN.

“Differs from *M. s. splendens* in its much deeper colour, and in having a very much slimmer bill, Yalgoo, Mid Westralia,” and in my List, 1913, I admitted

Malurus splendens splendens (Quoy & Gaimard).

South-west Australia.

and

Malurus splendens riordani Mathews.

Mid-west Australia (Interior).

and I now add

Malurus splendens perthi subsp. n.

for the form from Perth, described by Gould as *M. pectoralis*, which name is preoccupied as shown above, and which differs from the one named by Quoy and Gaimard from King George Sound.

GENUS—HALLORNIS.

HALLORNIS Mathews, Austral Av. Rec., Vol. I.,

pt. 5., p. 113. December 24, 1912. Type

(by original designation) *Malurus cyanotus*=
Malurus leuconotus Gould.

“DIFFERS from *Malurus* in its weaker bill and feet, its longer, more wedge-shaped tail and in lacking the erectile ear-coverts.”

The bill is short and stout, comparatively shorter and weaker than that of the preceding, slight basal expansion, culmen more arched and more strongly keeled; there are no nasal bristles and the rictal bristles are few and obscure and scarcely noticeable; the other features much as in the former genus.

The wing is short and rounded, the third to the seventh primaries subequal and longest, the second only a little shorter than the third and equalled by the tenth primary and the secondaries; the first primary is short, a little less than half the length of the third.

The tail is comparatively longer and more wedge-shaped.

The legs and feet are similar, but weaker throughout.



H. Grönvold. del

Witherby & Co

HALLORNIS LEUCONOTUS.
(WHITE-WINGED WREN).
NESOMALURUS LEUCOPTERUS.
(BLACK & WHITE WREN).

HALLORNIS LEUCONOTUS.

WHITE-WINGED WREN.

(PLATE 461, left hand figures.)

MALURUS LEUCONOTUS Gould, Proc. Zool. Soc. (Lond.), 1865, p. 198, June 1st : Interior of (South) Australia.

Malurus leucopterus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 222, 1827 ; [Not *Malurus leucopterus* Quoy and Gaimard, *i.e.* Dumont, Dict. Sci. Nat. (Levrault), Vol. XXX., p. 118, 1824.]

Gould, Birds Austr., pt. III., Vol. III., pl. 25, June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 330, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 290, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 173, 1901 ; Carter, Emu, Vol. III., p. 36, 1903 ; Milligan, *ib.*, p. 222, 1904 ; *id.*, *ib.*, Vol. IV., pp. 6, 9, 1904 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 214, 1904 ; Lawson, Emu, Vol. IV., p. 134, 1905 ; Berney, *ib.*, Vol. V., p. 73, 1905 (N.Q.) ; Mathews, Handl. Birds Austral., p. 78, 1908 ; Whitlock, Emu, Vol. VIII., p. 180, 1909 ; Crossmann, *ib.*, Vol. IX., p. 88, 1909 ; Whitlock, *ib.*, p. 201, 1910 ; Howe, *ib.*, p. 232 ; Macgillivray, *ib.*, Vol. X., pp. 20, 33, 1910 ; Stone, *ib.*, Vol. XII., p. 114, 1912 ; S. A. White, *ib.*, p. 124 ; Mellor, *ib.*, p. 185, 1913.

Malurus leuconotus Gould, Proc. Zool. Soc. (Lond.), 1865, p. 198, June 1st : Interior of (South) Australia ; *id.*, Handb. Birds Austr., Vol. I., p. 332, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 291, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 174, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 217, 1904 ; Milligan, Emu, Vol. IV., p. 52, 1904 ; Mathews, Handl. Birds Austral., p. 78, 1908.

Malurus cyanotus Gould, Handb. Birds Austr., Vol. I., p. 331, Dec., 1865 : New South Wales ; Campbell, Emu, Vol. I., p. 26, 1901 ; North, Rec. Austr. Mus., Vol. IV., No. 5, p. 209, 1902 ; Hall, Emu, Vol. IX., p. 127, 1910 ; S. A. White, *ib.*, Vol. XIII., p. 28, 1913 ; Chandler, *ib.*, p. 41 ; Macgillivray, *ib.*, p. 171, 1914 ; Ashby, *ib.*, Vol. XVI., p. 232, 1917 ; Whitlock, *ib.*, Vol. XVII., p. 166, 1918 ; Campbell, *ib.*, Vol. XVIII., p. 259, 1919 ; Alexander, *ib.*, Vol. XIX., pp. 137-8, 1919 ; Ashby, *ib.*, Vol. XX., p. 135, 1921 ; Whitlock, *ib.*, p. 180.

Malurus cyanotus cyanotus Mathews, Nov. Zool., Vol. XVIII., p. 359, 1912.

THE BIRDS OF AUSTRALIA.

- Malurus cyanotus exsul* Mathews, *ib.*, Jan. 31st, 1912 : Yule River, North-west Australia ; Mellor, *Emu*, Vol. XX., p. 139, 1921.
- Malurus leuconotus leuconotus* Mathews, Nov. Zool., Vol. XVIII., p. 359, Jan. 31st, 1912.
- Malurus leuconotus perplexus* Mathews, *ib.* : Day Dawn, West Australia.
- Hallornis cyanotus* Mathews, List Birds Australia, p. 225, 1913 ; Carter, *Ibis*, 1917, p. 589, pl. x. ; S. A. White, *Emu*, Vol. XVIII., p. 22, 1918.
- Hallornis cyanotus cyanotus* Mathews, List Birds Austr., p. 225, 1913 ; S. A. White, *Emu*, Vol. XIV., p. 189, 1915.
- Hallornis cyanotus exsul* Mathews, List Birds Austr., p. 225, 1913.
- Hallornis leuconotus leuconotus* Mathews, List Birds Austr., p. 225, 1913 ; *id.*, Austral Av. Rec., Vol. III., pt. 4, p. 89, 1917.
- Hallornis leuconotus perplexus* Mathews, List Birds Austr., p. 225, 1913.
- Hallornis leuconotus* Mathews, Austral Av. Rec., Vol. 3, p. 89, 1917.
- Hallornis leuconotus leuconotus* Mathews, *ib.*
- Hallornis leuconotus cyanotus* Mathews, *ib.*
- Hallornis leuconotus exsul* Mathews, *ib.*
- Hallornis leuconotus perplexus* Mathews, *ib.*
- Malurus c(yanotus) diamantina* H. L. White, *Emu*, Vol. XVIII., pt. 2, p. 121, Oct. 1918 : Diamantina River, Western Queensland ; Jackson, *Emu*, Vol. XVIII., p. 168, 1919.
- DISTRIBUTION.** Interior of Australia, Queensland, New South Wales (Victorian Mallee), South Australia and West Australia generally, outside tropics, save extreme coastal districts.
- Adult male.* Crown of head, nape, hind-neck, mantle, lower-back, rump, and upper tail-coverts ultramarine-blue with dull blackish bases to the feathers ; tail also blue but darker and duller ; a tuft of white feathers on each side of the breast ; inner upper wing-coverts, innermost secondaries, and upper-back also white, the last being almost concealed by the elongated blue feathers of the mantle ; outer upper wing-coverts and primary-coverts blue ; outer edges of primary-quills blue, or bluish-grey, inner webs blackish with slightly paler edges ; sides of face similar to the top of the head but the feathers are small ; lores inclining to black ; throat, breast, abdomen and sides of body ultramarine-blue, darker than the crown, becoming somewhat paler on the thighs and under tail-coverts ; axillaries and under wing-coverts pale blue with smoke-brown bases to the feathers ; under-surface of flight-quills blackish-brown with pale grey margins ; lower aspect of tail similar to its upper-surface. Bill black, eyes deep brown, feet and legs very dark brown. Total length 123 mm. ; culmen 8, wing 47, tail 60, tarsus 21. Figured. Collected at Bore-well, West Australia, on the 30th of July, 1909.
- Adult female.* General colour above, greyish-fawn, including the top of the head, sides of face, sides of neck, hind-neck, entire back, upper tail-coverts, and outer aspect of flight-quills ; becoming greyish-blue on the outer webs of the primaries, the inner-webs blackish-brown ; tail dull lavender-blue with whitish margins to the feathers ; lores whitish ; throat, breast, and abdomen also whitish, slightly tinged with pale fawn-colour, which is more pronounced on the lower flanks, thighs, and under tail-coverts ; under wing-coverts and inner margins of quills below similar, remainder of quill-lining dark brown ; lower aspect of tail similar to its upper-surface. Bill and eyes brown, feet ashy-grey. Total length 128 mm. ; culmen 8, wing 48, tail 67, tarsus 20. Figured. Collected at Glen Ferdinand, Central Australia, on the 18th of July, 1914.

WHITE-WINGED WREN.

Young males. Resemble the females, but have dark bills.

Nest. Dome-shaped, with entrance near the top, composed of dried grass and lined with soft materials (feathers, wool, etc.), $4\frac{1}{2}$ inches high by 3 wide.

Eggs. Clutch, four. White, finely freckled with purplish or reddish-brown, more on the larger end; sometimes a zone is formed. 15-16 mm. by 12.

Breeding-season. September to January.

Malurus leuconotus was described by Gould who observed: "In size this fine new species is very similar to the last, from which, however, it may be at once distinguished by its white back, which has suggested the specific name I have assigned to it. It inhabits the interior of Australia, but the precise locality is unknown to me; it accompanied fine examples of *Geophaps plumifera*."

I find that Mitchell has recorded (*Three Expeditions into the Interior of Eastern Australia*, Vol. II., p. 261, 1838): "We had several new birds, but the most admired of our ornithological discoveries was a White-winged Superb Warbler from the junction of the Darling and Murray, all the plumage not white being of a bright blue colour, but of this we had obtained only one specimen."

This was probably the earliest record of this species, and was not mentioned by Gould.

The last referred to was the species Gould had figured under the name of *Malurus leucopterus* in his folio work, but which he queried later, writing: "I regret that I have not been able to clear up the doubt which exists in my mind, whether the present bird is or is not distinct from the one figured by Messrs. Quoy and Gaimard in the *Voyage de l'Uranie*, since, on applying at the Museum of the Jardin des Plantes for the purpose of examining the original specimen, it could not be found; the figure above quoted, if intended for this bird, is by no means correct, and it is, moreover, said to be from Dirk Hatich's Island, on the western coast, a locality very distant from those in which my specimens were procured, New South Wales, which circumstance strengthens my belief that they may be distinct; besides which, the bird under consideration is supposed to be exclusively an inhabitant of the interior, for I have never observed it between the mountain ranges and the coast, and it is scarcely probable, therefore, that it should inhabit an island like that of Dirk Hatich. In case they should prove to be different, I propose the name of *Malurus cyanotus* for the bird from New South Wales. The birds seen by me were either in pairs or in small troops, and evinced so much shyness as to render the acquisition of specimens a task of no little difficulty, particularly of the full-plumaged male, who appeared to be conscious that the display of his gorgeously coloured dress might lead to his detection. Its powers of flight

THE BIRDS OF AUSTRALIA.

are not great ; but this is fully compensated for by the extraordinary manner in which it threads the bushes, and passes over the surface of the ground in a series of hopping bounds, whereby it readily eludes pursuit. The most successful mode of obtaining it is to ascertain the precise spot in which it is located, to approach it cautiously, and to remain silent for a short time, when the male will soon show himself by hopping out from the bush—the restless nature of his disposition not admitting of his remaining long concealed.”

Captain S. A. White has written me : “ *Hallornis cyanotus*.—This charming little bird has a wonderful range. I have obtained it a few miles north of Adelaide and then traced it in a northerly direction to Central Mt. Stuart, to the West Australian border, and to the New South Wales border in the east. It is a lover of the open salt-bush country, where it nests and brings up its young. I have seen it in thick scrub, but not often ; they move about in small family parties, and the male bird, when adorned in nuptial plumage like other members of the family is very conscious of his conspicuous coloration, and keeps very close to cover when danger is near, although females and immature males in their brown plumage are hopping close by in the open, quite unconcerned with the exception of now and then giving a little alarm note which is evidently meant to keep their brilliantly colored males acquainted of the fact that the danger had not yet passed. At nesting time they pair off, although I have seen three and sometimes four birds helping to build the nest, very often two males in full breeding plumage. This is the case with the feeding of the young birds, for two or three male birds will take part in looking for food for one nest of young ones, but I have never known more than one female to lay in any one nest. The number of eggs varies much according to the season : in dry seasons they very often only lay two eggs and sometimes only one, the general clutch is three or four ; the nest is placed in a low bush and the composition varies according to the material most easily procurable. The bird has a charming little plaintive song at nesting time. *H. leuconotus*.—It is very strange that all through my trips and expeditions into the interior I have never seen this bird ; if it were not that I have doubted other species I have rediscovered later on, I would wonder if this is really a good species.” Later, writing about his trip to the Gawler Ranges, he observed : “ Was met with out on the salt-bush plains but is seldom if ever found on the ranges. For thirty miles round Port Augusta these little birds were very numerous, but as we worked south, parallel with Spencer’s Gulf, we lost them and *M. callainus* took their place. Heading north again we picked them up at the northern end of Lake Giles but not in any numbers ; an odd bird or so was met with on the north side of the Ranges on the return journey out on the salt-bush plains ; although Dr. A. M. Morgan found these

WHITE-WINGED WREN.

little birds nesting in great numbers 300 to 400 miles east of here at this very time, we never found one nest with eggs or young."

Mr. J. W. Mellor has written me: "This Wren has a very wide distribution over the northern portions of South Australia, where I have seen it abundant in the open country about Port Augusta and Port Germein on Spencer's Gulf shores. It loves the open blue bush and salt bush country in these dry regions, and the male is very conspicuous with his bright blue coat tipped with white on the wings. They are comparatively tame, but directly you start to stalk them, they keep flying straight away from you and, keeping well out of gun-shot, will lead you a long way and then double and fly right back to the spot they started from, where their mates are keeping to the bushes; these little brown birds do not fly away like the bright colored males—there are several of these to each bright male in a small covey. I also found them very plentiful in the salt and blue bush country at Yunter, South Australia on the line to Broken Hill, and between there and Teehulpa Goldfields."

Some years ago Mr. Tom Carter sent me his field notes which I here include as written: "*Malurus leuconotus*. Having always been dubious as to whether the White-backed Wren on mainland is distinct from *cyanotus*, I put my notes under the latter heading, *Malurus cyanotus*. The White-winged Wren is the most abundant species of *Malurus* in the Gascoyne and North-west Cape districts, and although in your 1912 "Reference List" you give this species as occurring generally through West Australia, I do not think that it is ever seen in the South-west south of the Swan River, certainly not in the coastal timber areas. About Pt. Cloates and the Gascoyne, these birds were common in good seasons, feeding in the thickets, and on open flats with scattered patches of scrub. The Roly-Poly bush (Aboriginal *Mallorang*) that grows quickly after summer rains in the above districts was much frequented by them, as affording good cover, and no doubt plenty of insect food. Their nests were not infrequently built inside these annual "bushes." The full-plumaged males are usually wild and shy as compared with the remainder of a family party, which are much less timid. The male birds have a very pleasant trilling song, which is often uttered during the night, perhaps at some slight alarm. They appear to breed anytime after rains; the nest is usually not far from the ground. On December 8th, 1898, I watched a brood of young leaving a nest built in a Roly-Poly bush near Yardie Creek. August 28th, 1911. Recently fledged young were seen near Point Cloates, and a few days afterwards male birds were shot in immature plumage, that certainly seemed to be breeding, judging by enlarged sexual organs."

Since then an agreement has practically been reached, but the field notes of other writers must be interposed before reaching Carter's final account.

THE BIRDS OF AUSTRALIA.

Thus, Milligan wrote from the Wongan Hills: "One of the gems of the collection was *Malurus leucopterus*, which was, comparatively speaking, numerous on the moist, brackish, sandy tracts in the vicinity of lakes, and also on the plains. As *M. pulcherrimus* loves the dry stony country, so does *M. leucopterus* love the inland sand areas. We found it most difficult to get sight of a male, although we could frequently hear their singular 'reeling' notes. On the other hand, the females were most fearless and trusting, and could always be brought to foot with a decoy note. The broods were all out, and on many occasions I caught and examined young ones. We managed to secure two males during the trip, but neither fell to my gun, though I chased one from bush to bush at full speed and with much enthusiasm for fully half a mile. They appear to be always on the alert and at the same time very distrustful. No doubt these unenviable, but life essential, qualities have been developed and made constant by their being continually harassed by their enemies, their brilliant plumage making them conspicuous objects in the landscape. The habit of elusion has eventually become a second nature with them. Colour to this surmise is given by the fact that the females, who are sombre in colour, are quite fearless. When being chased, the male bird adopts highly intelligent tactics. Dropping into the first convenient bush at its base, he quickly passes through to the other side of it, and immediately takes wing and flies with great rapidity to the next shelter, thus interposing the quitted bush between the pursuer and pursued, with every advantage to the latter. On comparing the skins of the two male birds we secured, with some skins of the same species obtained at Day Dawn (some 200 miles farther north), the former was of a distinctly darker blue; and on a further comparison of both the above with the skin of a male obtained at Yule River, in the north-west, the last was much paler blue than either, and in addition was larger and had brown legs and bill instead of black ones. The difference between the Wongan bird and the Yule River bird was very marked indeed, but the Day Dawn bird helped to bridge in a slight degree the gap of difference. The female of the Yule River bird is a clear biscuit-brown with whitish underparts, whilst the females from the other two localities named, varied from an obscure brown to greyish-brown."

Milligan then drew attention to the fact that there was some mystery about *leuconotus*, as two birds showed a partly white back, writing: "As the ranges of the two species are to a great extent identical, the above forms would appear to be intermediate ones between the two species."

Then Carter and I carefully examined the whole of the birds available, to test Carter's contention that there was only one species, and we both agreed and published a plate in the *Ibis*, with Carter's remarks, which I confirmed.

WHITE-WINGED WREN.

“Some years ago I noticed that the blue feathers in the interscapular region in these birds were really long pendent feathers growing on the *base of the back of the neck*, and if these are raised by a pencil, white feathers will be observed growing beneath them, right across the back. The pendent blue feathers overlap them in triangular form and hang down over the mid-lower back. Many specimens obtained in various parts of mid-west Australia have been examined in the flesh, immediately after shooting, and all had white feathers underneath the blue, varying in amount according to the season, as these white feathers largely fall out at the moult. Much depends, too, on the making of a skin as to whether these white feathers show or not. At certain stages of the moult the pendent blue feathers may be very scanty, causing more white to show. After examining a long series from various parts of Australia, Mr. G. M. Mathews and myself are agreed that there is but one species which must stand as *Hallornis cyanotus* (Gould), and of which *Malurus leuconotus* Gould is a synonym.”

Whitlock then gave a fairly complete account from which I quote: “During my travels in Western Australia I frequently met with the White-winged or Blue and White Wren. It has an extensive range. . . Generally speaking, it is an inhabitant of the hot, dry interior . . its favourite haunts are samphire flats around the shores of the vast salt lakes. In latitudes farther south it inhabits the sand plains, but the nearer the latter approach the forest country, the scarcer this Wren becomes. It approaches the coast-line the farther north its range extends, and may be found adjacent to the seashore in many parts of our north-west. With such an extended habitat it naturally shows some variation in plumage. This is most apparent in the brilliance or otherwise of the blue coloration, the brightest birds being found, according to my observations, in the hot interior, where the species is most plentiful. On the sand plains of the south-west, where it is far from common, the blue appears to be of a deeper shade, and the white not so pure. Again, in the far north, amongst the spinifex, where its range must about reach its limit in that direction, the general appearance is less striking. It is smaller, has a deeper-toned plumage, and the ear-coverts do not differ much in tint from the remainder of the blue plumage. It is a hardy little bird. . Even in the driest seasons pairs are found nesting. . . At nesting time the male is generally near at hand, usually with only the female in his company, but not uncommonly two or three brown birds may be present. The female is a close sitter, and comes within a few feet of the observer when near the nest. At all times the male adult is very wary and difficult of a near approach. In old males, the bill once it attains its full coloration, is always black. Males frequently breed in the brown plumage. Full nuptial plumage, as a rule,

THE BIRDS OF AUSTRALIA.

is not attained until the third year. With regard to a supposed blue White-backed Wren (*Malurus leuconotus*), there is much doubt whether it may have been a sport, or the white back has been produced by the contraction of the skin between the shoulders when the specimen was made up. I have searched in many localities for this supposed white-backed species without success."

A. J. Campbell added a note, quoting Carter's account, and observed: "It is satisfactory to have this point so thoroughly cleared up," and then gives some remarks about the differences between the eastern and western forms, concluding that the colours varied seasonally as well as geographically, and that "Students will, no doubt, accept *one* western geographical race."

The two species *cyanotus* and *leuconotus* being commonly accepted, I separated my specimens according to traditional identification by my Australian friends and with the assistance of the British Museum authorities. When I prepared my "Reference List" in 1912, I was perplexed in the differentiation of the two species, but was unable to determine their exact relationship so allowed them, and named a Western subspecies of each thus:

Malurus cyanotus cyanotus Gould.

New South Wales, Victoria.

Malurus cyanotus exsul Mathews.

"Differs from *M. c. cyanotus* in having the blue coloration darker above and below. Yule River, N.W. Australia."

West Australia.

Malurus leuconotus leuconotus Gould.

South Australia.

Malurus leuconotus perplexus Mathews.

"Differs conspicuously from the typical form in the coloration of the head, which is pale turquoise-blue, whereas the type has the head purplish-blue. Day Dawn, West Australia."

West Australia.

When Carter emphasized the fact that there was to him only one species, I was willing to accept that view, and carefully examining every specimen, I agreed that *leuconotus* was based on a made-up skin and so we both published the news. As above noted, this is now agreed upon, but a consideration of the subspecific forms still leaves a lot of trouble. I lumped in the *Austral Avian Record*, allowing only

Hallornis leuconotus leuconotus (Gould)

and

Hallornis leuconotus exsul (Mathews).

Although Campbell agreed to this, it does not seem to show the facts, and H. L. White has named

Malurus cyanotus diamantina

WHITE-WINGED WREN.

from the Diamantina River, Western Queensland, as it differs from the southern and western varieties by its strikingly lighter colour—light violet-blue or cornflower-blue; it has also much more white on the wings, extending to the secondaries. He also notes that Macgillivray records it from further north on the Cloncurry (at Sedan), and these should be compared.

Campbell stated that Carnarvon birds are paler than New South Wales specimens and that therefore my diagnosis of my Yule River form is wrong, and refers to a Cossack specimen which is lighter on the head and darker below. In view of Whitlock and Lawson's notes, there is apparently great variation geographically in the western birds, and recently Alexander has written: "On examination of 23 adult males (from W. Australia), I find that they vary very considerably, some being quite bright blue and others dark; moreover, most of the darkest birds are from the most south-westerly part of the range of the species, viz., the Wongan Hills and Yandanooka."

At present, then, we must still hold in suspense the absolute status of the forms and allow

Hallornis leuconotus leuconotus (Gould).

Interior of South Australia; Victoria
(mallee).

Hallornis leuconotus cyanotus (Gould).

New South Wales (range unknown).

Hallornis leuconotus diamantina (H. L. White).

Western Queensland.

What is meant by "light violet-blue or cornflower-blue" is puzzling, as these two colours are not exactly the same in ordinary usage.

Hallornis leuconotus wongani subsp. nov.

Wongan Hills.

The darkest race of this species, and apparently all the birds from the south-west are very dark.

Hallornis leuconotus exsul (Mathews).

Interior of North-west Australia.

Of this, *perplexus* may be synonymous, but this is not definitely determined, so that it might be best to tentatively allow

Hallornis leuconotus perplexus (Mathews).

Interior of West Australia.

until we can link up with the forms from Central Australia, viz., typical *H. l. leuconotus*.

Again, from the extreme north-west, i.e., Cossack, another race may be distinguished according to Whitlock and Campbell's notes. As to the correct specific name when Carter and I wrote, there was a doubt, and in

THE BIRDS OF AUSTRALIA.

Carter's paper *cyanotus* was used, and in mine *leuconotus* was accepted, but I noted the doubt. The facts are now clear. Gould described *M. leuconotus* and this was published on June 1st, 1865. This is included in his Handbook at the same time as he suggested *cyanotus*, and the Handbook was published in two volumes in December, 1865. Richmond has written me that he saw a note that the first volume was to be published on September 1st, 1865, but apparently this was not done. So that the name *leuconotus* has absolute priority and must be used.

GENUS—NESOMALURUS.

NESOMALURUS Mathews, Austral Av. Rec.,
Vol. II., pts. 2/3, p. 59, October 23rd, 1913.

Type (by original designation) *Malurus edouardi* Campbell.

THE characters cited at the proposition of this new genus by me read :
“Differs from *Hallornis* Mathews in its longer bill and stronger feet, from *Ryania* Mathews in its stouter bill and longer tail, and from *Malurus* Vieillot and *Leggeornis* Mathews in lacking erectile ear-coverts ; the fourth primary of the wing is longest.” The recognition of this genus depends upon the value of structural characters as opposed to colour values. From the point of view of colour, it is the island representative of *Hallornis leuconotus*, and agrees as most isolated island forms do in showing modification with regard to flight ; thus, the wings decrease in power, while the legs increase and generally simultaneously the bill becomes more powerful, more adapted to picking up ground-living insects, etc. I wrote : “The subject of the Dark Blue Wrens is more complex than at first appears. While it may be quite true that the Dirk Hartog and Barrow Island Wrens are simply melanistic products of *Hallornis*, we cannot jump to this conclusion without considering the New Guinea so-called *Malurus* and *Todopsis*. The latter genus was proposed for large birds of *Malurus* (*cyaneus*) coloration, and has since been regularly recognised even by genus lumpers. Under *Malurus* has been classed a New Guinea species of similar coloration to the Dirk Hartog species, but comparison shows it to have had an entirely different origin to that suggested for the latter. The New Guinea species *Malurus alboscapulatus* Meyer has a much longer, broader bill, recalling the formation of the bill of the New Guinea *Todopsis*, and quite different from the Dirk Hartog Island birds’ bill, it also has a different wing formula and a noticeably short, square tail. It is obviously not a *Malurus*, even in a broad sense,” and I generically named it *Devisornis*, adding : “Whether it should be associated with *Todopsis* or not may be debated, but the close relationship of *Todopsis* to *Malurus* seems indubitable from colour values alone. In recent classifications they have been very widely divorced, but I think this is quite unnatural. If it be proven that they have no close alliance, then we cannot hypothesize upon the new alliance of the Dirk Hartog form and the mainland *Hallornis*, but must await anatomical investigation.”

NESOMALURUS LEUCOPTERUS.

BLACK AND WHITE WREN.

(PLATE 461, Right hand figures.)

MALURUS LEUCOPTERUS Dumont, Dict. Sci. Nat. (Levrault), Vol. XXX., p. 118, May 29th, 1824, based on Quoy and Gaimard, pl. 23, f. 1: Dirk Hartog Island, Shark's Bay, West Australia.

Malurus leucopterus Dumont, Dict. Sci. Nat. (Levrault), Vol. XXX., p. 118, May 29th, 1824; Quoy and Gaimard, Voy. de l'Uranie et Physicienne Zool., p. 108, pl. 23, f. 1, Sept. 18th, 1824; Campbell, Emu, Vol. I., pp. 26-65, pl. vi., Oct. 1901, Jan. 1902; North, Rec. Austr. Mus., Vol. IV., p. 209, Jan. 6th, 1902; Campbell, Emu, Vol. XIX., p. 1, pl. 1, 1919; Whitlock, *ib.*, Vol. XX., p. 180, 1921.

Amytis leucopterus Lesson, Traité d'Orn., p. 454, 1831.

Malurus edouardi Campbell, Victorian Naturalist, Vol. XVII., p. 203, Feb. 7th, 1901: Barrow Island, West Australia; *id.*, Emu, Vol. I., p. 26, Oct. 1901; *id.*, *ib.*, p. 65, pl. vi., Jan. 1902; North, Rec. Austr. Mus., Vol. IV., p. 210, Jan. 1902; Hall, Key Birds Austr., 2nd ed., p. 115, 1906; Mathews, Handl. Birds Austral., p. 79, 1908; Whitlock, Emu, Vol. XVIII., p. 248, pl. xxxix., 1919; Campbell, *ib.*, Vol. XIX., p. 1, pl. 1, 1919.

Malurus leucopterus leucopterus Mathews, Nov. Zool., Vol. XVIII., p. 362, 1912: Alexander, Emu, Vol. XIX., p. 138, 1919.

Malurus leucopterus edouardi Mathews, Nov. Zool., Vol. XVIII., p. 362, 1912; Whitlock, Emu, Vol. XVII., p. 175, 1918; H. L. White, *ib.*, Vol. XVIII., p. 127, 1918; Alexander, *ib.*, Vol. XIX., p. 138, 1919.

Nesomalurus leucopterus leucopterus Mathews, List Birds Austr., p. 229, 1913; *id.*, Austral Av. Rec., Vol. III., p. 79 *et seq.*, pl. 3, 1917; Carter, Ibis, 1917, p. 593; *id.*, Emu, Vol. XVIII., p. 139, 1918.

Nesomalurus leucopterus edouardi Mathews, List Birds Austr., p. 229, 1913.

DISTRIBUTION. Dirk Hartog Island, Shark's Bay, West Australia; and Barrow Island, Dampier Archipelago, West Australia.

Adult male. Top of head, back, upper tail-coverts, outer upper wing-coverts, sides of face, throat and entire under-surface, including the under wing-coverts, glossy-black with steel-blue reflections on the crown of the head; a tuft of white feathers on each side of the breast; inner upper wing-coverts, scapulars, upper-back, and innermost secondary-quills pure white, the white on the upper back is almost covered

BLACK AND WHITE WREN.

by the elongated black feathers of the mantle ; flight-quills hair-brown both above and below ; tail dark blue with dark obsolete cross bars, lower aspect similar. Bill black, eyes dark hazel, legs brownish-purple, feet darker. Total length 112 mm. ; culmen 9, wing 44, tail 55, tarsus 19. Figured. Collected on Dirk Hartog Island, West Australia, on the 30th of September, 1916.

Adult female. General colour of the upper-surface cinnamon-brown, including the top of the head, back, and wings ; flight-quills hair-brown, both above and below, becoming darker on the innermost secondaries ; tail pale faded-blue, with dark obsolete cross-bars, and whitish margins to some of the feathers ; rectal bristles black ; sides of face and sides of body similar to the back ; lower flanks, thighs, and under tail-coverts paler and inclining to buff like the under wing-coverts ; throat, breast, and abdomen, whitish with blackish bases to the feathers ; lower aspect of tail similar to its upper-surface, except that the shafts of the feathers are paler and inclining to white. Bill pale reddish, eyes dark hazel, feet and legs purplish-flesh. Total length 118 mm. ; culmen 9, wing 44, tail 61, tarsus 19. Figured. Collected on Dirk Hartog Island, West Australia, on the 9th of October, 1916.

Immature males. Resemble the females, but have blackish bills.

Nest. "Domed, with side entrance near the top. Constructed of very fine dried grass matted together with spiders' web, cocoons and small pieces of wool, lined with pieces of fine grass, cocoons and wool. 5 inches long by $2\frac{3}{4}$ wide." (White.)

Eggs. "Clutch, three to four. White, marked all over, but particularly at the larger end, with small dots and splashes of pale reddish-brown, sometimes forming a zone at the larger end. 15 mm. by 10 mm." (*ib.*)

Breeding-season. August, Barrow Island ; June to September, Dirk Hartog Island. (Whitlock.)

Two anomalies stand out during the preparation of an Avifaunal account such as the present: the lack of life histories of common birds accompanied by complex technical nomenclature, and full accounts of very rare ones. To the latter class must be added the present species.

As the history is now fairly well known, it will only be briefly here related.

When the "Uranie" and "Physicienne," two French exploring vessels, were in Australian waters, the two surgeon naturalists, Quoy and Gaimard, enthusiastically made huge collections in every branch of Natural History, and many of their discoveries were lost to science through the fact of the local distribution of the forms. Yet the names proposed by these workers became associated with other species from varied causes. In the present instance, on an isolated little island, they discovered some strange new little birds, of which paintings were made and the specimens preserved, but, owing to an accident, the latter were lost. The paintings, however, were published and the birds described and named. Similar birds were found in Australia later, and the earliest names were used. Gould used the one we are now dealing with, *Malurus leucopterus*, but apparently referring to the painting, observed the discrepancy, but did not read the history, as he stated the type was not to be

THE BIRDS OF AUSTRALIA.

found in the museum, so he could not make actual comparison. It is a peculiar fact that no one seemed to think that the bird might have a local distribution, and so the matter remained for nearly eighty years.

It was brought prominently into notice by the discovery on Barrow Island, off Mid-west Australia, of a "black and white" *Malurus*, which Campbell described as a new species with the name *Malurus edouardi*. North claims to have recognised that this was the lost *Malurus leucopterus* and published a note in the *Records Austr. Mus.*, Vol. IV., January 6th, 1902, noting the facts and giving a footnote: "The above note was sent last July to Melbourne for publication in the *Victorian Naturalist*, but was temporarily withdrawn, pending an application to the Western Australian Museum, Perth, for the loan of the type (of *Malurus edouardi*)."

In the first number of the *Emu*, published in October, 1901, A. J. C. gave a note that he had also been induced to refer to Quoy and Gaimard's figure, and was inclined to the opinion that his species was similar, but pointing out that the two islands concerned, Barrow Island, whence *M. edouardi* was sent, and Dirk Hartog Island, the original locality from which *Malurus leucopterus* was described, were about 500 miles apart.

In the second number of the same Journal, Campbell added a plate showing the Barrow Island bird as stuffed, and a copy of Quoy and Gaimard's figure and a translation of their account: "This bird comes from the same place as the previous one. We only met with it on the Island of Dirk Hartog, living among the *traquets*, which it seemed to us to resemble in its habits. It is shown with natural splendour in the sketch which M. Arago made of it at that time. Its whole head, neck, belly, and the upper part of the back are so dark a blue as to appear black, the wings are white on the upper part and brownish at their extremities. Perhaps the latter colour depends on the age, and is not that which ought always to be there. The beak is black and the claws are brown. Total length, 3 inches 4 lines, or thereabouts."

In the succeeding number editorial comment on North's essay is very antagonistic, reading: "Reference to the photographs will show that there are marked points of distinction . . . and that it requires some imagination to regard them as identical . . . Is it not, therefore, extremely probable that Mr. North has been somehow led astray? Possibly not having the birds themselves to examine has been a cause of error, and, when specimens of both are before him, he will possibly reconsider his present decision."

In view of A. J. C.'s first note such comment was, to say the least, decidedly ungenerous.

The matter then remained in abeyance for a dozen years, when Mr. Tom Carter, at my instigation, undertook the exploration of Dirk Hartog Island,

BLACK AND WHITE WREN.

and solved the first problem, the existence and exact appearance of Quoy and Gaimard's *Malurus leucopterus*. In the *Austral. Avian Record*, Vol. III., p. 79, 1917, I gave a fairly complete account of this important item, and I then recorded that, as was the custom at that time, Quoy and Gaimard had allowed a more famous naturalist, Dumont, to include the species in the articles he was writing in the *Dictionnaire des Sciences Naturelles*, then in course of publication. The plates for the voyage had been prepared and were quoted by Dumont, although not at that time published. Dumont's article was then published three months before the part of the voyage in which the birds were named, and consequently the first reference must be to Dumont.

I published a short field note taken from Carter's MS., which I here reproduce: "This Black and White Wren was one of the commonest species on Dirk Hartog Island, but the full-plumaged males were, almost invariably, exceedingly wild, while the females and immature males were tame, and could always be 'chirped' close up, often to within a distance of three feet, and would remain there as long as one kept still. If an adult male is come upon suddenly, say, by one's going quickly round a bush, it *may* remain motionless for a few seconds. It then flies quickly, and if followed it keeps taking longer flights every time it is approached, and eventually is lost to sight. Once, on open ground, I came upon a full-plumaged male perched on a dry stick about three feet off the ground. There was no cover for me to take and I had to approach it openly, and it remained motionless until I got close up. It was no use to try and 'chirp' up male birds, but at times, when a party of females and immatures were intently watching me and listening to my 'chirping,' the male was seen lurking in the dense foliage of a neighbouring bush, but would not openly expose itself. The full-plumaged male, as a rule, is accompanied by a party of six to ten females and immatures, and leads them away out of danger at high speed, necessitating running to keep them in sight. One or two of the birds keep dropping out of sight, and eventually one finds that the whole party has vanished in the scrub. The note (song) is a similar musical trilling to that of *Mal. leuconotus*, but it is not uttered nearly as frequently. This species usually *runs* on the ground at great speed, occasionally hops; they are very skilful in flying perpendicularly in the air, from a bush, and catching small insects on the wing. It apparently breeds in September, as a quite recently fledged young bird was noted on October 9th, and many of various sizes about October 18th. None of this species were seen or obtained by me on the mainland, where the dividing arm of the sea is *barely one mile in width*, but was replaced by *Malurus leuconotus*, which was fairly common."

Carter's complete field notes were later published in the *Ibis*, 1917, p. 593, *et seq.*, and I note the following additional items of interest: "On October 26th

THE BIRDS OF AUSTRALIA.

a non-breeding male was shot, which was assuming the full plumage. In this species, as in *Malurus splendens*, *Leggeornus lamberti occidentalis*, and *Hallornis cyanotus*, the brilliant colouring appears at the base of the feathers first, below the outer plumage of loose open texture. This plumage of loose texture seems to wear away, or fall off, as the coloured plumage grows up from below. After October 26th, most of the males began to moult, their white scapulars seeming to fall out first. Some immature males beginning to assume full plumage, were noted on or about October 10th. Two or three of the adult males obtained had small patches of ultramarine-blue feathers amid the black of the chest and throat. Occasionally an adult male was seen with small tufts of pure white feathers amid the body plumage. From the above-mentioned patches of blue colour it may be assumed that ages ago, before Dirk Hartog became separated from the mainland, this species was identical with the then existing type of mainland birds. Skins of adult males from Dirk Hartog compared with skins from Barrow Island in the Perth Museum, are darker in general colour and have tails of richer blue; but, as it is fifteen years since the Museum birds were mounted, they have probably faded. *M. edouardi* has the wings 5 mm. longer than *M. leucopterus*, but the latter has the larger bill."

I had remarked: "I have compared a Dirk Hartog specimen with a Barrow Island bird and note the following differences: The former has a distinctly stouter bill, recalling the original figure, which appears to have exaggerated that feature to call attention to it; the white markings on the scapulars extend on to the secondaries, which are pure white, while in the latter they are brownish with white edgings; the wing in the Barrow Island form is noticeably longer. As no series are available, these characters may not be constant, but as Campbell emphasized, the localities are five hundred miles apart and consequently the forms must, for the present, be regarded as subspecifically separable. For these dark Blue Wrens I proposed the new generic name *Nesomalurus*, but Mr. Carter suggests that as the Dirk Hartog form is replaced by the blue and white species on the mainland, and as in habits, note, etc., it is essentially identical, it may simply be an island evolution of the blue and white form."

Upon publication of these results Mr. H. L. White commissioned F. L. Whitlock to explore Barrow Island and Dirk Hartog Island for the nests and eggs of this and other rare species, and from his reports I quote the following: "I observed a party of small birds fly from the spinifex . . they looked very brown. . . I watched them quietly without seeing any signs of a male in nuptial plumage, and an hour's subsequent search throughout the neighbourhood failed to discover one. I came to the conclusion that this

BLACK AND WHITE WREN.

party was led by a male which had not yet acquired nuptial plumage. I have often found the same state of things prevailing with parties of the common blue White-winged Wren. According to my observations, it is not until the third season that males amongst the *Maluri* assume full nuptial plumage, though exceptional cases of early hatched males assuming a partial nuptial garb late in the following season undoubtedly occur. Later (November 5th) I procured a male in change. This is a late date for such an occurrence and bears out my contention as above. Males in brown plumage, too, undoubtedly pair with adult females, and become the parent of a brood of young. My first impressions of *Malurus edouardi* pointed to the fact of its being the smallest of the genus I had hitherto met with. Compared with its nearest congener, *Malurus cyanotus*, it seemed less robust in build, had a shorter tail, and rather a feeble voice. The trill notes are similar to those of the blue White-winged Wren, but not so sustained or frequently uttered. The brown males and females and immature birds I found by no means timid, and, if 'chirped' to, would come out of cover and allow of observations at a distance of a few feet. . . . On Barrow Island this Wren can hardly be called rare, but it is distinctly local. My regular beat consisted of about six miles of coastal country to a distance inland of half-a-mile. The Wrens frequented only certain portions of this tract, but I have no doubt similar localities all around the island would be equally favoured. No land birds breeding on the island during my visit, and no birds I dissected appeared to be less than six months old. The latter fact points to birds having bred immediately after the heavy rains the second week in March of last year. In sailing to and from Barrow Island I landed on several other islands of the Dampier Archipelago, the majority being much nearer to the mainland (Barrow Island is distant about thirty miles), but though I kept a very sharp lookout, I could discover no species of Wren on any of them. But I observed a blue and white Wren with a party of brown birds near Cossack, and on my return from Barrow Island I secured a specimen, as well as a brown bird accompanying him" Whitlock returned the next year and found the nests and eggs which he has described in detail, but did not write much more about their habits, probably because there was nothing remarkable to write about. He later published his account of the Dirk Hartog birds, writing: "It is a common bird, I am glad to say, and despite the number of cats living a bush life on the island, it is holding its own. Its numbers in relation to those of its congeners, *Malurus assimilis*, I estimate at twenty to one, even allowing for the more silent and secretive habits of the latter. Though it has its preferences, I visited no part of Dirk Hartog where it was not present. When I state that I frequently saw a male sitting on a fence just outside the wool-shed door, and that I photographed a nest which

THE BIRDS OF AUSTRALIA.

had contained a brood of young within a very short distance of the homestead, and found another nest containing eggs not a quarter of a mile away, its familiarity will be at once apparent. Again, I climbed nearly to the highest point of the ridge traversing the island, known as Herald Heights (600 feet), and found pairs or parties of Pied Wrens right up to the summit. During the breeding season the male, in nuptial dress, is not difficult of approach, and on numerous occasions I have watched him at a distance of a few feet. The females and immature birds will almost come to one's feet if called up and the observer stands quite motionless. The nuptial male, however, is more silent than males in brown plumage, and it was seldom I heard him uttering the familiar reeling notes. It is easy to distinguish the brown plumaged birds of *M. leucopterus* from those of *M. assimilis*. The latter possess hazel-brown beaks and are much more robust generally, apart from the wings and flanks being of a different tint. Call note and alarm note too are different. The breeding season, in an average year, extends from June to the end of September. Many pairs rear two broods."

As regards the taxonomic status of these two very similarly coloured birds, at present two conclusions are on record. When I drew up my "Reference List," with the Barrow Island specimens in view, and only the figure of the Dirk Hartog form, and the conflicting views as to whether they were identical or distinct, I pursued the middle course and allowed them as subspecies without any remarks. Later, I separated the bird generically and still ranged the forms as subspecies, with the Dirk Hartog bird questioned as being extinct. The rediscovery of the latter and comparison showed slight differences, but I was unable to gauge their value. Carter with accurate field knowledge suggested their very close relationship with the mainland Blue and White Wren, thus confirming North's opinion of many years before.

Campbell wrote: "The chief points of difference between the Barrow Island bird and that of Dirk Hartog Island are that the latter (*leucopterus*) has the darker blue tail (deep, dull, violaceous blue), corresponding with the colour of that of the Blue and White Wren (*cyanotus*) of the mainland. The tail of the former (*edouardi*) is a more greyish-violaceous blue, while the female *edouardi* nearly resembles the colour (fawn) of the female blue and white bird, the female *leucopterus* being lighter (drab). It also appears that the feathers of the lower part of the tibia of the male *leucopterus* are dusky grey, as in *cyanotus*, while the entire tibia of *edouardi* is black. From an examination of workable material these differences seem constant, and, there being intermediate forms of Black and White species, the two varieties may be separated on visual examination, without the assistance of attached labels." Campbell also wrote above: "the two island varieties are now figured together

BLACK AND WHITE WREN.

with their mainland representative"; but the plate was lettered with binomials suggesting distinct species. This induced Alexander to write a note on the matter, suggesting that if it be accepted that the two dark island forms had independently evolved from the mainland one, they should either be treated as distinct species, or as geographical races of a single species. He refers to Whitlock's views, whereas it was not Whitlock, but Carter who first made the suggestion, and the two forms were regarded as subspecific because there were slight differences though apparently of little value.

Alexander pointed out that the coloration of the mainland Blue and White Wrens varied in depth, but that the darkest coloured came from the most south-westerly portion of the range, and that intermediate forms might be found north of Geraldton, admitting however, that typical Blue and White Wrens were found on the Edel Land Peninsula, while Whitlock also found them on the mainland at Cossack, though suggesting some brown birds were referable to the Black and White species. Alexander then stated he would regard the island forms as subspecies of the mainland Blue and White Wren, a value negatived by the facts he had himself produced. It is probable that the two forms have independently evolved, but that is not sufficient at present to degrade them to subspecies, and the alternative would be the admission of them as distinct species, a value which while phylogenetically correct would require more proof than is at present available for its defence.

Consequently the two forms distinguished cannot be definitely valued, and a conservative view would accept two subspecies, though there is so little difference to be considered; the reference to the genus *Hallornis* is also under consideration, but they are undoubtedly different in many ways from *Malurus*. So all I can do is to admit

Nesomalurus leucopterus leucopterus (Dumont).

Dirk Hartog Island.

and

Nesomalurus leucopterus edouardi (Campbell).

Barrow Island.

and leave the matter until a more complete series in all stages of plumage has been studied.

GENUS—LEGGEORNIS.

Leggeornis Mathews, *Austral. Av. Rec.*, Vol. I.,
 pt. 5, p. 113. December 24th, 1912. Type
 (by original designation) *Malurus lamberti*.
 Vigors and Horsfield.

I WROTE: "Differs from *Malurus* in its heavier bill and longer wedge-shaped tail, though possessing erectile ear-coverts."

The bill is short and stout, rather strongly arched, and the culmen keeled, somewhat triangular, gradually increasing basally at the forehead, much broader than deep; the nasal groove extends more than one-third the length of the exposed culmen, the nostrils linear and strongly operculate; the tip is decurved sharply and posteriorly notched, a couple of nasal bristles can be seen, while there are six strong, prominent rictal bristles; the under mandible is stout, the interramal space—broad and extending nearly one-third the length of the bill—is only scantily feathered anteriorly.

The wing has the fourth, fifth and sixth primaries longest and subequal, the third a little less and equal to the seventh, while the second is equal to the tenth and the secondaries; the first primary is about half the length of the third.

The tail is long and wedge-shaped, longer than the wing.

The legs are long and thin, booted anteriorly and posteriorly bilaminate, the feet small; all the claws are small; the outer toe and claw is equal to the inner toe and claw, but the inner claw is a little longer; the hind toe and claw is not quite as long as the middle toe and claw.

Key to the Species.

Ear-coverts turquoise blue :	
Patch on back light turquoise blue	<i>L. elegans.</i>
Patch on back dark blue	<i>L. lamberti.</i>
Ear-coverts dark blue :	
Throat and chest dark blue	<i>L. pulcherrimus.</i>
Throat and chest black	<i>L. amabilis.</i>



H Grönvold del

Witherby & Co

LEGGEORNIS ELEGANS.
(RED-WINGED WREN).

LEGGEORNIS LAMBERTI.
(VARIEGATED WREN).

LEGGEORNIS LAMBERTI.

VARIEGATED WREN.

(PLATE 462.)

MALURUS LAMBERTI Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 221, Feb. 17th, 1827 : New South Wales.

Malurus lamberti Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 221, 1827 ; Gould, Synops. Birds Austr., pt. I., pl. (8), 1837 ; *id.*, Birds Austr., pt. III. (Vol. III., pl. 24), June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 327, 1865 ; Diggles, Orn. Austr., pt. v., 1866 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 53, 1876 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 589, 1876 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 292, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 176, 1901 ; *id.*, Emu, Vol. III., p. 58, 1903 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 218, 1904 ; Mathews, Handl. Birds Austral., p. 78, 1908 ; Cleland, Emu, Vol. IX., p. 222, 1910 ; Mellor, *ib.*, Vol. X., p. 208, 1910 ; Le Souëf and Macpherson, *ib.*, Vol. XX., p. 89, 1921.

Malurus assimilis North, Victorian Naturalist, Vol. XVIII., p. 29, June 6th, 1901 : "Gulf of Carpentaria, Western New South Wales," etc. = Mossgiel district ; Interior of New South Wales ; Hall, Emu, Vol. I., pp. 88, 91, 1902 ; (Anon.) Emu, Vol. II., p. 230, pl. x., 1902 ; Carter, *ib.*, Vol. III., p. 36, 1903 ; Campbell, Emu, Vol. III., p. 58, 1903 ; Milligan, *ib.*, Vol. IV., p. 6, 1904 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 222, 1904 ; Hall, Key Birds Austr., 2nd ed., p. 111, 1906 ; *id.*, Emu, Vol. VII., p. 27, 1907 ; Mathews, Handl. Birds Austral., p. 78, 1908 ; Whitlock, Emu, Vol. VIII., p. 180, 1909 (W.A.) ; Hall, *ib.*, Vol. IX., p. 127, 1910 : Eyre Peninsula ; Whitlock, *ib.*, p. 201 (W.A.) ; Howe, *ib.*, p. 232 (Vic.) ; Wilson, *ib.*, Vol. XII., p. 35, 1912 (Vic.) ; S. A. White, *ib.*, pp. 124, 129 ; G. F. Hill, *ib.*, p. 249, 1913 (N.T.) ; Chandler, *ib.*, Vol. XIII., p. 41, 1913 (Vic.) ; S. A. White, *ib.*, p. 127, 1914 ; Macgillivray, *ib.*, p. 171, 1914 ; Campbell, *ib.*, Vol. XVIII., pp. 6, 259, 1918-19 ; Ashby, *ib.*, Vol. XX., p. 134, 1921 ; Whitlock, *ib.*, p. 182.

Malurus bernieri Grant, Bull. Brit. Ornith. Club, Vol. XXIII., p. 72, May 7th, 1909 : Bernier Island ; *id.*, Ibis, 1909, p. 676, pl. ix. : West Australia.

Malurus lamberti lamberti Mathews, Nov. Zool., Vol. XVIII., p. 360, Jan. 31st, 1912.

Malurus lamberti assimilis Mathews, *ib.* ; Jackson, Emu, Vol. XVIII., p. 168, 1918.

THE BIRDS OF AUSTRALIA.

- Malurus lamberti mastersi* Mathews, *ib.*, Vol. XVIII., p. 360, Jan. 31st, 1912 : Alexandra, Northern Territory.
- Malurus lamberti occidentalis* Mathews, *ib.* : Lake Way, West Australia.
- Malurus lamberti mungi* Mathews, *ib.* : Mungi, Interior North-west Australia.
- Malurus lamberti bernieri* Mathews, *ib.*, p. 361.
- Malurus lamberti morgani* S. A. White, Austral Av. Rec., Vol. I., pt. V., p. 126, Dec. 24th, 1912 : Lake Gardner, South Australia.
- Leggeornis lamberti* Mathews, List Birds Austr., p. 226, 1913.
- Leggeornis lamberti lamberti* Mathews, List Birds Austr., p. 226, 1913.
- Leggeornis lamberti assimilis* Mathews, *ib.* ; S. A. White, Emu, Vol. XV., p. 160, 1916 ; *id.*, Vol. XVI., pp. 14, 76, 1916.
- Leggeornis lamberti morgani* Mathews, List Birds Austr., p. 226, 1913.
- Leggeornis lamberti occidentalis* Mathews, *ib.* ; Carter, Ibis, 1921, p. 61.
- Leggeornis lamberti bernieri* Mathews, *ib.*, p. 226, 1913.
- Leggeornis lamberti mungi* Mathews, *ib.* ; *id.*, South Austr. Ornith., Vol. 3, p. 174, 1918.
- Leggeornis lamberti mastersi* Mathews, *ib.*
- Malurus lamberti dawsonianus* H. L. White, Emu, Vol. XVI., p. 69, pl. xvi., Oct. 2nd, 1916 : Dawson River, Queensland.
- Leggeornis lamberti hartogi* Mathews, Bull. Brit. Orn. Club, Vol. XXXIX., p. 24, Nov. 30th, 1918 : Dirk Hartog Island, West Australia.
- Leggeornis lamberti eyrei* Mellor, South Australian Ornithologist, Vol. VI., pt. I, p. 10, Jan. 1st, 1921 : Eyre's Peninsula.

DISTRIBUTION. Australia ; generally more common in the interior districts. Not Tasmania.

Adult male. Fore-part of head and sides of face, including the eye, turquoise-blue, becoming darker blue on the nape, sides of neck, and middle of back ; middle of crown more or less grey ; ear-coverts, hind-neck, lower back, and rump deep black like the chin, lores, rictal bristles, throat, and upper-breast ; mantle and upper back rich chestnut ; wings earth-brown, becoming hair-brown on the middle portions of the flight-quills ; upper tail-coverts and tail faded-blue, with white margins and white tips to the feathers of the latter and also obsolete cross-bars ; lower-breast and abdomen white ; flanks, thighs, under tail-coverts, and under wing-coverts pale buff ; flight-quills below hair-brown ; lower aspect of tail similar to its upper-surface but differs in having white shafts to the feathers. Bill black, eyes dark brown, feet and legs very dark brown. Total length 124 mm. ; culmen 10, wing 51, tail 64, tarsus 22. Figured. Collected at Lake Way, West Australia, on the 7th of July, 1909, and is the type of *Malurus lamberti occidentalis*.

Male immature. Crown of head, sides of face, sides of neck, hind-neck, entire back, and upper tail-coverts mouse-grey ; wings similar to the back with a tinge of buff on the greater coverts and innermost secondaries ; flight-quills hair-brown, slightly paler on the outer and inner edges ; tail dark faded-blue with white tips and pale margins to the feathers ; rictal bristles black with whitish bases ; lores and short feathers around the eye whitish ; chin, throat, breast, and abdomen cream-white ; flanks, thighs, under tail-coverts, axillaries, under wing-coverts and inner margins of quills below pale buff ; under-surface of flight-quills hair-brown ; lower aspect of tail similar to its upper-surface with white shafts to the feathers. Bill black, eyes dark brown, feet and legs dark brown. Total length 132 mm. ; culmen 8,

VARIEGATED WREN.

wing 48, tail 68, tarsus 23. Figured. Collected at Day Dawn, West Australia, on the 15th of June, 1903.

Adult female. Very similar to the above, but lighter, and with the bills, lores and eye-ring, dull red.

Nest. "Dome-shaped, with entrance near the top. Outwardly it is formed of silky-white dried grasses and their flowering plant stalks, the inside being lined at the bottom with plant down. 5 inches high by 3 wide." (North.)

Eggs. Clutch, three or four, white speckled or spotted with purplish-red, more on the larger end. 17 mm. by 12.

Breeding-season. September to December.

VIGORS and Horsfield gave no field notes when they described this species, simply stating: "These two last birds (*i.e.*, the present and *M. cyaneus*) have long been considered varieties of the same species, and have been figured as such in *White's Journal*. Independently, however, of the difference between the two birds in their colours, and in the distribution of them, we may observe that the tail of the latter bird is much more graduated than that of *Mal. cyaneus*, while the under wing-coverts are whitish, which in *Mal. cyaneus* are rufous."

GoULD added nothing regarding its habits.

Captain S. A. White has written me: "*L. lamberti*.—I have met with this bird in many localities in New South Wales and Queensland; they seem to keep to the good rainfall belts, for I have never seen them in the dry, back country where *L. l. assimilis* take their place. *L. l. assimilis*.—I contend that this bird is found over the greater part of South Australia, and that *L. l. morgani* is confined to the Gawler Ranges. To me there is no doubt that the bird found in New South Wales and Victoria is the same as the South Australian bird with the exception of those from the Gawler Ranges."

Mr. J. W. Mellor writes: "*M. assimilis* is very common in the bush country where there is cover. I saw them on the plains and in the Flinders Ranges, but always in cover, from which they 'break,' ever and anon, to fly across some clear space, only to enter another thicket; they can be called out by imitating the twittering calls of the male birds, and as they are somewhat tame and inquisitive, I have called quite a little covey in this way, hopping out to me quite confidently."

Mr. Edwin Ashby states: "I shot a fine cock at the Palm Woods at the foot of the Blackall Range in Queensland. I have also received an immature male from further north, but I believe it is much more common further south in New South Wales."

Mr. J. W. Mellor has written me: "I have seen *M. lamberti* fairly plentiful in the hill country of New South Wales and also in Queensland, and I have

THE BIRDS OF AUSTRALIA.

taken specimens in various localities ; at Ourimbah Creek in the Gosford District I noted them commonly, and I also saw them near Mt. Cooroy in the Blackall Ranges, South Queensland. They keep to the thick undergrowth that fills in the spaces beneath the high trees, coming out into the tracts and clearings now and then, and hopping about in search of small insects and flies, upon which they live ; there are always several females in each covey."

Le Souëf and Macpherson, writing of the birds of Sydney, which is the type locality of the species, state : "There are a few pairs of Lambert's Wren Warbler (*Malurus lamberti*) in the parks around the harbour ; but, as they keep to the undergrowth, they are not so often seen. However, they come more often in the open in the autumn, and even overlap the domain of the Blue Wren. In March last a party were heard uttering their little trills in rather an excited way, and investigation showed that they were in a small bush scolding something in the grass below. A male 'Blue' also came to see what the fuss was about, and flew into the same bush, only to be promptly chased out again by the female Lamberts, but the male Lambert ignored him. The cause of the trouble was a rat, which ran away through the bushes, and was closely followed by the birds."

This item serves to draw attention that in White's *Voyage to New South Wales* this bird was figured on the same plate as the Blue Wren, as at that time the experts were not certain whether they were distinct species or only plumage changes, while Lewin painted this bird under the name of *Sylvia cyanea* ; and it was distinguished by Latham in MS., but was first published, as noted above, by Vigors and Horsfield.

Mr. Tom Carter's notes read : "The Variegated Wren, though given in your 1912 'Reference List' as ranging through West Australia, is restricted to the more northern parts and mid-west inland areas. In some seasons (especially after good rains) it was fairly plentiful in the Gascoyne and North-west Cape districts, right down to the coast. About Point Cloates they were to be seen in the small patches of scrub in the hollows of the coast sandhills, and in the gullies and gorges of the rugged ranges extending from there to the North-west Cape. In August and September, 1911, they were quite common about Carnarvon and Maud's Landing, thirty-five miles south of Point Cloates, probably because rains had fallen along the coast, while drought prevailed inland. During this trip one specimen was shot on the Minilya River, having the centre of the back blue instead of the usual mauve tint, and the blue on the throat was much more pronounced than usual. Some male specimens were also obtained in immature plumage that were undoubtedly breeding. One family party of these birds was observed on the edge of the beach, near Carnarvon, catching small insects off the seaweed washed up, a few

VARIEGATED WREN.

yards from the open sea. September 28th, 1911. Fledged young noted at Carnarvon."

Mr. J. P. Rogers wrote me : " This species was first seen in the desert four miles east of Mungi, when it was seen on several occasions. The next locality was Endralla Spring, Fitzroy River, fourteen miles west of Mt. Anderson. Some years ago I collected similar birds from Mount Wynne, Fitzroy River, 100 miles inland ; from a station thirty miles from Broome on the Derby road, and from the Stewart River, 100 miles north of Derby. It is a rare bird in all the localities named in West Kimberley. These are the birds recorded by Hall in the *Emu*."

Whitlock, writing of the Birds of the Pilbarra Goldfields, recorded : " This (*assimilis*) was the *Malurus* of the district, but in no instance did I find it far from the main river. In July the males were assuming full plumage, and building operations commenced at the end of the month. I saw not the slightest evidence of polygamy in the case of this species. This *Malurus* is double-brooded."

Carter has recorded concerning the Birds of Dirk Hartog Island and Peron Peninsula : " Red-winged or Western Blue-breasted Wrens were common on Dirk Hartog Island and were much tamer in disposition than either *Hallornis cyanotus* or *Nesomalurus l. leucopterus*. The full-plumaged males of all three of these species are always much wilder and more wary than the females or immature males, but the adults of the species now under consideration are tame as compared with the others. Parties of females can always be ' chirped ' close up, as long as one remains quiet, and after a little patient watching, the adult male can almost invariably be seen lurking in the foliage of a bush behind the rest of his family, and if one still refrains from moving, it will most probably emerge from its shelter and approach to within two or three feet, hopping about in a very confiding way. Sometimes when I have been watching a party of females and young birds for some time, and turned to move away, I would find the adult male was close behind me. Female birds are distinguished from the immature males by having dull red beaks and lores, and a patch of the same colour round the eye. The immature males lack this red coloration and have blackish beaks, while their general colouring is darker than that of the females. Females of the Black and White Wren and of *Hallornis cyanotus* also lack the red lores and mark around the eye. *L. l. occidentalis* is a very silent bird, and I never heard any song from those seen on Dirk Hartog, nor yet from any of the hundreds I have met with in various localities of Mid-west Australia, from Shark's Bay to North-west Cape. It seemed as if this species was partial to feeding in the scrub close to the beach, but many family parties were also seen further inland on the island. Very small, but exceedingly active young birds were seen on October 13th, 1906,

THE BIRDS OF AUSTRALIA.

having evidently only recently left the nest. . . . Specimens from Dirk Hartog appeared to be the same as those from the Peron, but the series of skins obtained have not yet (1917) been worked out. Comparison of skins from both these localities, with skins at the Perth Museum from Bernier Island, prove the former to differ from the last named."

Whitlock added: "Mr. Carter calls this the Western *Blue-breasted* Wren. Certainly, the feathers of the breast, if held in certain lights, are *black, shot with blue*, but the true Western Blue-breasted Wrens are *Malurus pulcherrimus* and *Malurus elegans*. Viewed from any angle, the breast feathers of these two Wrens show a deep indigo tint. Mr. Carter states that he has never heard this species uttering any song. It has a few brief rattling notes and a high-pitched alarm note like that of the Grass Wren (*Amytornis textilis*); but I agree with him that it is generally a very silent and unobtrusive bird, though this is not due to timidity."

Macgillivray has recorded: "This Wren Warbler was found to be fairly common throughout the Gulf country. On the 28th of March a nest was found in rather an unusual position for this bird, being placed amongst the leaves of a tea-tree at about five feet from the ground. It was composed outwardly of fine bark, strips of grass, and skeleton leaves, and lined with fine rootlets and horsehair. In Western New South Wales this species builds on or very close to the ground. Mr. M'Lennan found it frequenting the tea-tree along all the rivers from the Cloncurry to the Brook near Burketown."

Ramsay in 1875 wrote: "I think Rockingham Bay must be the most northern limit of this species. The New South Wales birds differ in the tint of colouring from those of South Australia, being of a more verditer blue on the head, and of a lighter tint on the back."

Masters observed that the birds from the Gulf of Carpentaria were different from New South Wales birds, and might even represent a new species.

When North prepared the *Australian Museum Special Catalogue*, No. 1, he reviewed the specimens of *Maluri* in the collection, and, noting Ramsay and Master's observations, described the bird from the Gulf of Carpentaria, Western Queensland and Western New South Wales, as a new species with the name *M. assimilis* as darker, more purplish throughout. It may be here interposed that in the *Handlist Gen. Sp. Birds, B.M.*, Vol. I., p. 204, 1869, appears *M. caerulei-capillus* Gould, a species never described by Gould. In the *British Museum Catalogue* this name was synonymised with Gould's *pulcherrimus* and according to the present Rules the name becomes a synonym of that and is unavailable in any other manner. The British Museum Collection still contains the specimens so catalogued by G. R. Gray, and these are four in

VARIEGATED WREN.

number, one from "S. Australia, Sturt," a second from "Australia, Sir T. Mitchell," and two collected by Elsey, one from the Nicholson River, Gulf of Carpentaria, the other simply N. Austri. All these specimens are now labelled *assimilis* North, and were distinguished from *lamberti* under the name *pulcherrimus* previously, as there was no specimen of true *pulcherrimus* at hand for verification. The name *caerulei-capillus* is credited to Gould by G. R. Gray, and this authority appears on one of the Elsey specimens. The above four represent the Gouldian species, but why Gould did not describe it is a puzzle, as no mention is made of the birds in the *Handbook*.

As a new species Grant described the form from Bernier Island under the name *Malurus bernieri*. In 1912, I regarded these two as subspecies only and added three more, allowing

Malurus lamberti lamberti Vigors and Horsfield.

New South Wales (Coastal), Queensland.

Malurus lamberti assimilis North.

New South Wales (Interior), South Australia.

Malurus lamberti mastersi Mathews.

"Differs from *M. lamberti assimilis* in having the feathers round the eyes and the ears turquoise blue (not cobalt blue), though the head and back agree in coloration with *M. l. assimilis*. Alexandra, Northern Territory."

Northern Territory.

Malurus lamberti occidentalis Mathews.

"This bird is easily recognisable, as it combines the head coloration of *M. l. lamberti* with the back coloration of *M. l. assimilis*. Lake Way, West Australia."

West Australia.

Malurus lamberti mungi Mathews.

"Differs from *M. l. occidentalis* in its darker coloured head and especially the darker coloration of the ear-coverts. The female is more buff on the underside. Mungi, North-west Australia."

Interior North-west Australia.

Malurus lamberti bernieri Grant.

Bernier Island, West Australia.

Then was described

Malurus lamberti morgani S. A. White.

"Differs from *M. l. assimilis* in having much darker chestnut scapulars. Lake Gairdner, South Australia,"

and in my "1913" List I admitted the preceding seven subspecies, but placed them in the genus *Leggeornis*.

THE BIRDS OF AUSTRALIA.

Recently no fewer than three more subspecies have been named
Leggeornis lamberti hartogi Mathews.

Dirk Hartog Island, West Australia.

Malurus lamberti dawsonianus H. L. White.

Dawson River, Queensland.

and

Leggeornis lamberti eyrei Mellor.

Eyre Peninsula, South Australia.

When H. L. White added his new form he wrote: "Differs from *M. l. assimilis* in having a more robust bill, the black band at the back of the neck wider, while the blue of the head and back is of a much more purple shade, and the chestnut shoulders are considerably darker, in fact, it is as much darker than *M. l. assimilis* as that form is darker than *M. l. lamberti*. In size it is slightly smaller than either of the others mentioned. Of the other subspecies mentioned by Mr. Mathews, my bird most nearly approaches *M. l. mastersi*, from the Northern Territory, but is easily separable from that form by the fact that its ear-coverts are of a quite distinct shade, being more like those of *M. l. bernieri* from Western Australia."

Then A. J. Campbell made some remarks: "The true Eastern *M. lamberti* appears to be a very separate form (subspecies), while *M. assimilis* is more mixed, and extends right across the inland provinces of the continent. It is a poor race or variety, that one cannot name except one knows the locality it is from. Of the *assimilis* type, the Dawson bird, on the east, with its larger bill, and the Bernier Island bird, on the west, with the lighter chestnut shoulders, may both be picked out. Two fine Coongan skins (*assimilis*) may be either Mathew's *mungi* or *occidentalis*."

Later Campbell added, regarding the birds from Dirk Hartog Island: "I mentioned that this extreme western race may be either Mathew's *mungi* or *occidentalis*. It is now stated to be the latter. Specimens from Dirk Hartog and from the mainland do not differ; this was also observed by Carter, and is somewhat remarkable, seeing that Bernier birds (from next island but one to Dirk Hartog) are appreciably different, the male having a very distinct diva-blue (darker on the cheeks), correctly shown in Grant's figure (in the *Ibis*); while both male and female have darker blue tails than either Hartog or mainland birds."

Carter considered the Dirk Hartog Island birds as differing.

Apparently all the subspecies named must be admitted at present and probably more will be distinguished.

LEGGEORNIS ELEGANS.

RED-WINGED WREN.

(PLATE 462.)

MALURUS ELEGANS Gould, Birds Austr., and Adj. Isl., pt. I., pl. 2., Aug. 1837: "East Coast"—errone West Australia (Swan River).

Malurus elegans Gould, Birds Austr. and Adj. Isl., pt. I., pl. II., 1837; *id.*, Birds Austr., pt. III. (Vol. III., pl. 22), June 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 324, 1865; Diggles, Orn. Austr., pt. v., 1866; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat Birds Brit. Mus., Vol. IV., p. 291, 1879; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 16, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 175, 1901; Milligan, Emu, Vol. II., p. 71, 1902; *id.*, *ib.*, Vol. III., p. 17, 1903; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 227, 1904; Mathews, Handl. Birds Austral., p. 78, 1908; *id.*, Nov. Zool., Vol. XVIII., p. 360, 1912; Whitlock, Emu, Vol. X., p. 306, 1911; Witmer-Stone, Austral Av. Rec., Vol. I., p. 166, 1913; Orton and Sandland, Emu, Vol. XIII., p. 79, 1913; Le Souëf, *ib.*, Vol. XX., p. 143, 1921; Alexander, *ib.*, p. 166.

Leggeornis elegans Mathews, List Birds Austr., p. 226, 1913.

Leggeornis elegans warreni Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916: Warren River, South-west Australia.

DISTRIBUTION. South-west Australia (Coastal only from Albany to Perth).

Adult male. Crown of head and sides of face pale turquoise-blue, including the eye, and terminating in a point on the sides of the neck, becoming darker blue on the hinder-crown and nape; a narrow band across the mantle and a patch on the middle of the back also turquoise-blue, the feathers of the latter white at the base and black at the tips; scapulars chestnut; wings dark brown with slightly paler edges to the feathers; tail dark lavender-blue, some of the feathers narrowly edged with white at the tips; rictal bristles black; lores, throat, breast, sides of neck, hind-neck, rump and upper tail-coverts velvety-black; abdomen and flanks buffy-white, becoming dusky on the thighs and under tail-coverts; under wing-coverts cinnamon-buff like the inner margins of the quills below, remainder of quill-lining dark hair-brown; lower aspect of tail similar to its upper-surface. Bill black, eyes hazel, feet dark purplish-flesh. Total length 153 mm.; culmen 9, wing 53, tail 81, tarsus 24. Figured. Collected at Albany, South-west Australia, on the 12th of January, 1909.

THE BIRDS OF AUSTRALIA.

Immature male. Crown of head dusky-brown with a tinge of lead-grey, becoming paler on the base of the forehead and sides of face; back smoke-brown, the bases of the feathers dark lead-grey; upper tail-coverts ochreous with buffy-white bases to the feathers; wings, for the most part, dark chestnut; bastard-wing, primary-coverts, and flight-quills blackish-brown, with pale margins to the outer and inner webs of the last, some of the primary-quills of one wing marked with smoke-brown on the inner webs near the tips; tail dark lavender-blue with obsolete cross-bars, some of the feathers have pale narrow edgings and others more or less marked with smoke-brown; lores and rectal bristles black; throat and breast greyish-white inclining to pure white on the breast and abdomen; sides of body ochreous-brown; thighs dusky; under tail-coverts buff at the base becoming darker at the tips; under wing-coverts and inner margins of quills below cinnamon-buff, remainder of quill lining dark brown; lower aspect of tail similar to its upper-surface. Bill black, eyes dark brown, feet and legs deep hazel-brown. Total length 155 mm.; culmen 9, wing 53, tail 87, tarsus 28. Figured. Collected at Wilson's Inlet, South-west Australia, on the 8th of May, 1909.

Adult female. Similar to the above, but with bill and lores buff.

Nest. Dome-shaped, with entrance near the top, composed of grass and lined with feathers. 4 to 5 inches long by 3 to 4 wide.

Eggs. Clutch, three to five. Pinkish-white, with small marks of reddish-brown, all over, but more at the larger end. 15 mm by 12.

THIS bird was beautifully figured as a new species in the first number of the *Birds of Australia and the Adjacent Islands*, as from "East Coast Australia." After this had appeared, Gould conceived the idea of going to Australia and dropped the publication. When he recommenced the work after his return he ordered the destruction of the parts (only two in a number), replacing them with two others later. He then wrote: "It is an inhabitant of the western coast of Australia; all the specimens I possess were collected at Swan River, where it is tolerably abundant. . . . The males are subject to the same law relative to the seasonal change of plumage as the *Malurus cyaneus* and the other members of the genus. The gay nuptial costume of these birds renders them conspicuously different from the *Priniae* of India, to which they have otherwise a seeming alliance."

Mr. Tom Carter has written me: "The Red-winged Wren is given in your 1912 'Reference List' as occurring throughout West Australia. My own experience is, that its chief habitats are the swampy coastal districts of the south-western corner, where they have been noted as fairly common from Albany round to the Vasse River, also about forty miles up the Blackwood River. They seem particularly partial to the neighbourhood of swampy ground, and the extra dense vegetation and scrub prevailing in such situations. By remaining quietly in such places, one seldom has to wait long before a small party of these birds pass along. They travel rather quickly when feeding, and the full-plumaged males are shy."

RED-WINGED WREN.

Whitlock's account may be here transcribed to draw attention: "Mr. Milligan records that he shot a beautiful male when a fourth of the way up Mount Toolbrunup. I did not reach as far east as this, but I consider it much to be regretted that this specimen, and also other equally interesting ones, were lost, owing to an accident to a pickle tank. I think it very probable that a careful examination and comparison with the south coast form would have revealed differences in plumage due to climate, as I have never found the coastal bird in other than low wet situations. It breeds on my own ground, but so closely does it hug the swamps that I have never seen it on the adjacent jarrah hills, despite the fact that the latter are clothed with plenty of low growing scrub."

Alexander has written regarding the Birds of Perth: "Resident. Formerly occurred and nested near Herdsman's Lake, but does not now appear to be found in the immediate neighbourhood of Perth. It is doubtless still found on the borders of some of the remoter swamps; it occurs at Gingin, in the north of the district."

It will be seen that there is not much on record regarding this species, mainly due to its restricted range, where even there it does not seem to be common. I recently distinguished the Warren River birds on account of the darker coloration of the females, and we may admit

Leggeornis elegans elegans (Gould).

South-west Australia (Perth District).

Leggeornis elegans warreni Mathews.

South-west Australia (Warren River District).

LEGGEORNIS AMABILIS.

LOVELY WREN.

(PLATE 463, bottom figures.)

MALURUS AMABILIS Gould, Proc. Zool. Soc. (Lond.), 1850, p. 277 (after Jan.), 1852 : Cape York, Queensland.

Malurus amabilis Gould, Proc. Zool. Soc. (Lond.), 1850, p. 277, 1852 ; *id.*, Birds Austr. Suppl., pt. 2 (pl. 21), Sept. 1st, 1855 ; *id.*, Handb. Birds Austr., Vol. I., p. 328, 1865 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 52, 1876 ; Ramsay, *ib.*, Vol. II., p. 184, 1878 ; *id.*, Proc. Zool. Soc. (Lond.), 1875, p. 589 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 293, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; De Vis, Proc. Roy. Soc. Queensland, Vol. VI., p. 236, 1890 ; Hall, Key Birds Austr., p. 16, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 176, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 225, 1904 ; Mathews, Handl. Birds Austral., p. 78, 1908 ; Broadbent, Emu, Vol. X., p. 237, 1910 ; Barnard, *ib.*, Vol. XI., p. 27, 1911 ; Macgillivray, *ib.*, Vol. XIII., p. 172, 1914 ; Campbell and Barnard, *ib.*, Vol. XVII., p. 28, 1917 ; Macgillivray, *ib.*, Vol. XVII., p. 202, 1918.

Malurus hypoleucus Gould, Ann. Mag. Nat. Hist., Ser. III., Vol. XIX., p. 369, May 1st, 1867 : Cape York, Queensland ; *id.*, Birds Austr. Suppl., pt. 4, pl. 22, Dec. 1st, 1867 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 589.

Malurus pulcherrimus (not Gould), Hartert Nov. Zool., Vol. XII., p. 223, 1905.

Malurus dulcis Mathews, Bull. Brit. Ornith. Club, Vol. XXI., p. 100, May 30th, 1908 : South Alligator River, Northern Territory ; *id.*, Emu, Vol. VIII., p. 113, pl. B, 1913 ; H. L. White, *ib.*, Vol. X., p. 133, 1910 ; G. F. Hill, Emu, Vol. XII., p. 258, 1913 ; Barnard, *ib.*, Vol. XIV., p. 45, 1914 ; H. L. White, *ib.*, p. 157, 1915 ; *id.*, *ib.*, Vol. XVI., p. 224, 1917.

Malurus amabilis amabilis Mathews, Nov. Zool., Vol. XVIII., p. 361, Jan. 31st, 1912.

Malurus amabilis barroni Mathews, *ib.* : Cairns, North Queensland.

Malurus amabilis dulcis Mathews, *ib.*

Malurus amabilis rogersi Mathews, *ib.* : Napier Broome Bay, North-west Australia.

Leggeornis amabilis amabilis Mathews, List Birds Austr., p. 227, 1913.

Leggeornis amabilis barroni Mathews, *id.*, *ib.*, South Austr. Ornith., Vol. 2, p. 57, 1915.

Leggeornis amabilis dulcis Mathews, *ib.*

Leggeornis amabilis rogersi Mathews, *ib.*

DISTRIBUTION. North Queensland ; Northern Territory ; North-west Australia.



H. Grönvold. del

Witherby & Co

LEGGEORNIS PULCHERRIMUS.
(BLUE-BREASTED WREN).

LEGGEORNIS AMABILIS.
(LOVELY WREN).

LOVELY WREN.

Adult male. Fore-part of head and sides of face, including the eye, turquoise-blue, becoming darker blue on the hinder-crown and nape; a band across the hind-neck, rump, and upper tail-coverts velvety-black like the lores, throat, fore-neck, and breast; interscapular region lavender-blue with whitish bases to the feathers; scapulars and axillaries bright chestnut; upper wing-coverts and outer aspect of flight-quills dark earth-brown, some of the innermost secondaries edged with white at the tips, inner-webs of quills hair-brown; tail dark blue with dark obsolete cross-bars, some of the feathers margined and tinged with white; abdomen, flanks, and under tail-coverts white with dark centres to the feathers of the last; thighs whitish, varied with dark bases to some of the feathers; under wing-coverts white; under-surface of flight-quills hair-brown, slightly paler on the margins; lower aspect of tail similar to its upper-surface. Bill black, eyes dark amber, feet greyish-black. Total length 135 mm.; culmen 9, wing 51, tail 60, tarsus 22. Figured. Collected at Napier Broome Bay, North-west Australia, on the 13th of March, 1910, and is the type of *Malurus amabilis rogersi*.

Adult female. General colour of the upper-surface lavender-blue, including the top of the head, sides of face, sides of neck, hind-neck, entire back, scapulars, and upper tail-coverts; wings hair-brown; tail dark blue tipped with white and some of the feathers have white margins; rictal-bristles black with white bases; base of fore-head paler than the crown of the head; lores and short feathers encircling the eye bright chestnut; throat, breast, abdomen, and under tail-coverts white with dark bases to the feathers; under wing-coverts pale buff; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper-surface. Bill light brown; eyes dark amber, feet dark horn. Total length 137 mm.; culmen 10, wing 50, tail 65, tarsus 21. Figured. Collected at Napier Broome Bay, North-west Australia, on the 30th of June, 1910.

Immature males. Very similar to the above, but with bills black.

Nest. "Dome-shaped and similar to other members of the genus. Built of acacia leaves on the outside and grass on the inside, lined with rootlets, and above the egg-chamber lined with kangaroo fur." (White.)

Eggs. "Clutch, three. Ground-colour delicate pinkish-white, marked all over and particularly at the larger end with small spots and minute specks of dull reddish-brown. 16 mm. by 13." (*ib.*)

Breeding-season. September to October.

INASMUCH as Gould had the pleasure of discovering and describing nearly all the species of *Malurus sensu lato*, it is only just that his opinions should be recorded, even when proved later to be slightly erroneous, as in this case: "The officers of Her Majesty's Surveying Ship 'Rattlesnake' so well employed their time in collecting the natural productions of the Cape York district that they added very considerably to our knowledge of the fauna of that part of the continent. A single and somewhat imperfect specimen of this bird, bearing the words 'Cape York, 1849,' was transmitted by the late Captain Owen Stanley to the Zoological Society of London; and it is from this specimen that my description was taken. It is nearly allied to the *Malurus elegans*, but differs from the bird in its longer bill, in the deeper and more uniform blue of the cheeks and crown, in the darker colouring of the

THE BIRDS OF AUSTRALIA.

thighs, and in the much greater extent of the white on the tips and margins of the outer tail-feathers. I feel assured the female of *M. amabilis* will be found to closely resemble that sex of *M. cyaneus* whenever it is our good fortune to have examples transmitted to us; and that this desideratum may soon be obtained, as well as additional skins of the male, is much to be wished. When the Cape York Peninsula is closely explored, not only this, but many other interesting species will reward the collector, and the fauna will probably be found to partake of that of the adjacent island of New Guinea, as well as of forms peculiar to New South Wales."

Later, Gould described as a distinct species *M. hypoleucus*, which Cockerell later pointed out was only the female. It proved so different from other females of this group, that even after Cockerell had stated that this was the female only, he was doubted, and Ramsay, dealing with birds from Queensland included *Malurus amabilis* and *Malurus hypoleucus*, observing: "These birds, whether they be of the same species or not, were found together on the open grass-lands in the neighbourhood of Cardwell, in the vicinity of scrubs. It has not by any means been proved that they are male and female of the same species, as I find *neither Cockerell nor Thorpe*, during their trip at Cape York, ascertained the sexes of the birds they shot *by dissection*; I have made particular inquiries of Mr. Thorpe on this point, and I regret to say my collector at Rockingham Bay, when he skinned my specimens, made the same mistake and went solely by plumage; in the same locality were shot specimens of *M. lamberti*. It is not improbable that Mr. Gould's *Malurus hypoleucus* is quite a distinct species, or perhaps the young male of *M. amabilis*; but from the shape of the bill, etc., I am at present inclined to believe it to be a distinct species, the fact that they associate together in troops proves nothing on this point."

Barnard recorded it as fairly plentiful at Cape York and seen in small flocks in dense scrub. Builds in small bushes close to the ground.

Macgillivray added; "This species represents the chestnut-shouldered group at Cape York. The female, being blue, differs markedly from the females of the other *Maluri*. It frequents the scrubs, where it is quite common, and is rarely seen out of them, and then only when crossing from one patch of scrub to another. The largest flock noted consisted of one fully-plumaged and two immature males and four females. In the breeding-season three birds—a male and two females—and occasionally only the pair were met with. Their call note is very feeble, and can only be heard a few feet away. . Nesting takes place during the wet season." Later: "We found Lovely Wren Warblers frequenting the undergrowth of the scrub, and also the low heathy country behind the tea-tree swamps near the Claudie. We found a

LOVELY WREN.

deserted nest. . The cause of desertion was not far to seek, it was near a tree named by us the 'birdlime' tree. The pods of this tree fall off in bunches and exude a tenacious material like birdlime. . . A few pairs were noted on the Archer river."

After I had described and figured this species (*M. dulcis*) from the South Alligator River, Northern Territory, G. F. Hill found the nest and eggs, and these were described by H. L. White, who recorded G. F. Hill's field notes: "The habitat of this species, so far as my observations went, is restricted to the rocky sandstone country near the eastern side of Napier Broome Bay. September and the early part of October appears to be the general nesting season. One set of eggs was the only result of many careful searches during the latter part of October, November and December, 1909. After the nesting season these birds are generally seen in parties of from six to ten birds, the latter number being somewhat unusual. One party of ten birds contained five adult males, one moulting and four dull-plumaged birds (5th March, 1910), while another of six birds contained two adult males and four dull-plumaged birds."

G. F. Hill later found it fairly numerous at Borroloola, and H. L. White recorded: "I described a clutch of three eggs said to be those of the above species. I now wish to alter the identification, verified by Mr. G. M. Mathews, to that of *Leggeornis amabilis rogersi*. The skins and eggs referred to were taken by Mr. G. F. Hill in North-west Australia. Skins (again identified by Mr. Mathews) and eggs of the true *Leggeornis amabilis dulcis* have now been received from Mr. H. G. Barnard taken at Borroloola."

McLennan then explored the Northern Territory for Mr. H. L. White and met with this species about the King River, H. L. White recording: "King River. Occasional parties seen in the sandstone ranges, amongst the spinifex and brush. . . Stomach, small insects and beetles."

Gould, as noted, described the female as a distinct species, and no new form was named until I distinguished as new, *Malurus dulcis* from Arnhem Land, a form which Dr. Hartert had previously determined as *M. pulcherrimus*, and of which North wrote: "With all due respects to Dr. Hartert, *Malurus pulcherrimus* is not found on the Alligator River, Northern Territory. The bird he refers to under this name is my *M. assimilis*. The true *M. pulcherrimus* of Gould is strictly confined to South-western Australia. *M. pulcherrimus*, *lambergi* and *assimilis* are all distinct species, not 'forms.' " North erred almost as much as Hartert, as the bird Hartert had under view was not *assimilis* any more than it was *pulcherrimus*. I regarded it as quite novel and remarked upon the lavender flanks and the coloration of the female. Upon preparing my "Reference List" I noted the resemblance to

THE BIRDS OF AUSTRALIA.

the Cape York species, and concluded that the difference was only subspecific and then added two more subspecies, arranging

Malurus amabilis amabilis Gould.

Cape York District, North Queensland.

Malurus amabilis barroni Mathews.

"Differs from *M. a. amabilis* in having the chestnut scapulars much darker. Cairns, North Queensland."

Cairns District, North Queensland.

Malurus amabilis dulcis Mathews.

Malurus amabilis rogersi Mathews.

"Much paler on the head and back than *M. a. dulcis*, and also lacking the lavender flanks characteristic of that form. The female is very different in coloration. Napier Broome Bay."

North-west Australia.

With transference to the genus *Leggeornis*, these four were similarly arranged in my 1913 "List."

Campbell and Barnard have observed: "These 'beauties of the bush' were first observed at the rear of the township of Cardwell, and afterwards were seen amongst the rushes of dry lagoons or in the undergrowth of forest country. There is little or no difference between the Cardwell birds and Gould's species *amabilis* from Cape York—in the males, at all events; but in specimens compared, the Cape female appears a little bluer in colour, perhaps accounted for by the different time of season when taken."

LEGGEORNIS PULCHERRIMUS.

BLUE-BREASTED WREN.

(PLATE 463, two top figures.)

MALURUS PULCHERRIMUS Gould, Proc. Zool. Soc. (Lond.), 1844, p. 106, October: West Australia=Wongan Hills.

Malurus pulcherrimus Gould, Proc. Zool. Soc. (Lond.), 1844, p. 106; *id.*, Birds Austr., pt. xx. (Vol. III., pl. 23), Sept. 1st, 1845; *id.*, Handb. Birds Austr., Vol. I., p. 326, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 294, 1879; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 16, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 177, 1901; Milligan, Emu, Vol. III., p. 14, 1903; *id.*, *ib.*, p. 220, 1904; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 228, 1904; Milligan, Emu, Vol. IV., pp. 6, 152, 1904-5; Mathews, Handl. Birds Austral., p. 79, 1908; Carter, Emu, Vol. VIII., p. 105, 1908; *id.*, Ibis, 1910, p. 653; Crossmann, Emu, Vol. IX., p. 88, 1909; Whitlock, *ib.*, Vol. X., p. 307, 1911; *id.*, *ib.*, Vol. XI., p. 243, 1912; Mathews, Nov. Zool., Vol. XVIII., p. 361, 1912.

Malurus caeruleicapillus Gray, Handl. Gen. Sp. Birds Brit. Mus., Vol. I., p. 204, 1869 before Feb. 2nd, 1870, *ex* Gould MS. (*nomen nudum*).

Malurus pulcherrimus stirlingi Mathews, Austral. Av. Rec., Vol. I., pt. 8, p. 192, March 20th, 1913: Stirling Ranges, South-west Australia.

Leggeornis pulcherrimus pulcherrimus Mathews, List Birds Austr., p. 227, 1913.

Leggeornis pulcherrimus stirlingi Mathews, *ib.*

DISTRIBUTION. South-west Australia only; Wongan Hills and Stirling Ranges.

Adult male. Crown of head, nape, and upper-back, cobalt-blue; base of forehead and sides of face, including the short feathers encircling the eye, inclining to turquoise-blue; scapulars bright chestnut encroaching more or less on the upper wing-coverts; a band across the hind-neck, rump and upper tail-coverts velvety-black; upper wing-coverts and flight-quills above and below hair-brown; tail lavender-blue with obsolete cross-bars, some of the feathers tipped with white; lores, throat, upper-breast, and sides of neck dark blue-black; lower breast, abdomen and under tail-coverts white; lower flanks and thighs ochreous-brown; under wing-coverts pale cinnamon-buff; lower aspect of tail similar to its upper-surface. Bill black, eyes deep brown, feet very dark brown. Total length 142 mm.; culmen 9, wing 51, tail 78, tarsus 25. Figured. Collected in the Stirling Ranges, South-west Australia, on the 16th of September, 1911.

Immature males. Are very like the adult females, but have the bill and lores black.

THE BIRDS OF AUSTRALIA.

Adult female. General colour of the upper-surface mouse-brown, including the top of the head, sides of the face, hind-neck, back, upper tail-coverts and wings; tail lavender-blue with obsolete cross-bars, some of the feathers edged with white at the tips; lores and short feathers round the eye bright chestnut; throat and remainder of under-surface pale grey with more or less white on the middle of the abdomen; under wing-coverts pale cinnamon-buff; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper-surface. Bill dark brown. Feet brown, eyes dark brown. Total length 132 mm.; culmen 8, wing 48, tail 65, tarsus 25. Figured. Collected at Lake Kirk, West Australia, on the 28th of October, 1905.

Nest. Dome-shaped, with side entrance.

Eggs. Clutch, three, white, spotted with reddish-brown at the top. 16 mm. by 12.

Breeding-season. September to November.

It is doubtful whether this species is not the "most beautiful" of the genus as christened by Gould, who recorded: "For a knowledge of this species I am indebted to the researches of Gilbert, who informs me that 'it appears to be exclusively confined to the thickets of the interior of Western Australia; in habits and manners it greatly resembles the other members of the genus, but its nest is somewhat smaller than that of either of them.'"

Mr. Tom Carter states: "This species appears to be very local in its habitat and rarely seen. The only occasion on which it came under my notice was August 28th, 1908, when a party of five or six were seen in some scrub on a sand-plain, some miles east of Broome Hill. They were very wild and shy of approach, but I obtained one male and two females, which were in full moult. The same locality was visited on several occasions but no more birds seen there."

Masters' notes, published by North: "It is an inland and by no means common species, remarkably shy, and never observed in within less than sixty miles of the coast. Those procured were frequenting the margins of belts of 'marlock' trees, which grow in patches or belts resembling mallee scrubs, and vary from five to ten feet in height."

Milligan has given a good account of the discovery of this species in the Stirling Ranges, especially dealing with the identity of the species, writing: "Although there is not, perhaps, any doubt that the birds we secured were *M. pulcherrimus*, nevertheless there are some minor differences between them and Gould's bird that it may be desirable to mention. In the first place, the total length of Gould's bird is given as $5\frac{1}{4}$ inches, and the tail as $3\frac{1}{4}$ inches. In the Stirling Range bird the total length is $\frac{7}{8}$ of an inch greater, but the total measurements are equal, thus confirming the difference to the body length, which is material. Gould's measurements, however, are not always reliable, and as an example of such let me mention a similar inaccuracy in Gould's recorded measurements of *M. elegans*. Again, Gould gives the measurements

BLUE-BREASTED WREN.

of the bill of his bird as $\frac{1}{16}$ of an inch. Obviously this is an error, and should read $\frac{7}{16}$. I think, therefore, these points of difference may be put aside. Now, on the question of colour, Gould gives the colours of the crown of the head and eye-spaces of his bird as *glossy, violet blue* and *verditer blue* respectively. In the Stirling Range bird the colours are *deep violet blue* with a *purple tint* and *light cobalt* respectively. Possibly and probably, on comparison, the shades of blue in each bird would prove identical, and the differences may only rest in the discrimination of the respective writers. Some other minor differences appear in the tail colours and in the purity of the white on the abdomen, but these may be regarded as trivial. Attention, however, must be directed to the fact that in each of the Stirling Range birds dingy brown feathers appear in the cap, and that the upper tail-coverts are of the same shade.

Later, in the Wongan Hills, Milligan wrote: "We found pleasure in meeting one of Gilbert's discoveries, *Malurus pulcherrimus*, at its scientific 'birthplace.' On our first day's outing on the hills, the first two birds shot fell to my gun, the second of which was a handsome male bird of the Wren in full nuptial plumage. We found the species very numerous in the general tracts or rock patches in and about the hills. I had ample opportunity of observing them in their native haunts, and frequently brought the little families to my feet by imitating the calls of a young bird in distress. Great rivalry appears to exist between the males in their song, and on one occasion I found two of them in fierce combat. It would have been possible to shoot at least a dozen males without trouble, but after killing the second male I felt that I had done enough 'murder' among these charming creatures. We were too late for their nests and eggs, as all their broods were out. I caught several young birds at different times, but after examining them returned them to their parents' care. I have now found and have recorded this species at two different places in Western Australia—the first at the Stirling Ranges in the south, the second at the Wongan Hills. These I take to be the most southern and northern limits respectively of the species, but I shall be surprised, indeed, if the species is not afterwards found at elevated rocky places between the above limits. They undoubtedly are not only lovers of stony and rocky places, but also of mountainous ones." It is peculiar that he makes no comparison whatever this time.

Some years later Whitlock went to the Stirling Ranges and recorded: "Regarding the Blue-breasted Wren (*Malurus pulcherrimus*) one wants a calm, sunny day to find it, for it is by no means vociferous, and I regard it as one of the most secretive of the whole family. The favourite haunt appeared to be some low rounded hill littered with ironstone, and clothed with a not too dense and rather low, growth of marlock or mallee, and other

THE BIRDS OF AUSTRALIA.

smaller scrubs. Naturally at the foot of the slopes of such a hill one finds a shallow creek. I found it a good plan to follow up the creek, keeping a sharp look out and having both ears open for the feeble, but high-pitched alarm note. With the aid of a little artifice in the imitation of the call note, or failing that, with a representation of the cry of a wounded bird, the female may generally be induced to show herself, and after a time, in most cases, the male; but the latter, perhaps, being devoid of what is termed 'feminine' curiosity, soon retires again. . . . *M. pulcherrimus* is, I believe, strictly confined to the south-west of this State; but I hardly think it touches the coastal districts anywhere, its place being taken by *M. elegans*, also a dark blue-breasted bird, but easily distinguished by the very pale blue (or bluish-white) of the back. I may also state that in the brown plumage both sexes of these species are readily separable. In the adult male the beak, once it becomes black, remains black; but in females and young males the beak of *M. elegans* is of a light cinnamon brown, in contrast with dark hazel brown in the case of *M. pulcherrimus*. Also, the loreal stripe differs in the same degree, being deep chocolate in *M. pulcherrimus* and warm brown in *M. elegans*. I may add that these features in another species, found also in localities frequented by both the former, viz., *M. splendens*—are still lighter, the beak being cinnamon and the loreal stripe of quite a pale ferruginous tint. But in the cases of *M. pulcherrimus* and *M. elegans* a surer guide exists in the colour of the upper parts. *M. pulcherrimus* has these more like *M. splendens*, being rather ashy in tint, whereas in *M. elegans* the whole of the wing is of a dull snuff colour. I also find that the throat and breast of *M. elegans* are much paler than in the case of *M. pulcherrimus*, the same tendency towards 'ashiness' being observable in the latter."

Although Milligan recorded the differences he recognised from description, apparently he never confirmed them by actual comparison, yet they actually exist and from specimens I named

Malurus pulcherrimus stirlingi.

"Differs from *M. p. pulcherrimus* in having the chestnut scapulars and the head much darker, and the ear-coverts lighter; the flanks also are browner. (Type of *M. pulcherrimus* is from the Wongan Hills) Stirling Ranges, South-west Australia."

In my 1913 "List" I referred them to the genus *Leggeornis*, writing

Leggeornis pulcherrimus pulcherrimus Gould.

Wongan Hills, South-west Australia.

Leggeornis pulcherrimus stirlingi Mathews.

Stirling Ranges, South-west Australia.

And apparently nothing since then has been recorded.

GENUS—RYANIA.

RYANIA Mathews, Austral Av. Rec.,

Vol. I., pt. 5, p. 113, Dec. 24,

1912. Type (by original design-

nation) *Muscicapa melanocephala* Latham.

ALTHOUGH I only stated: "Differs from *Malurus* in its shorter wing and tail, and in lacking the erectile ear-coverts" there seems to be no very close relationship between this group and the ones just preceding.

The bill is short and stout, culmen a little arched and keeled, the tip little decurved and the expansion of the base comparatively less than in the preceding; there are three weak rictal and no nasal bristles; the linear nostrils lie in a nasal groove which is more than one-third the length of the culmen; the under mandible comparatively stout, the interramal space small and feathered.

The wing has the third and fourth primaries subequal and longest, the fifth and sixth a little shorter successively, the second is equal to the eighth and is a little shorter than the secondaries; the first primary is short and less than half the second primary in length.

The tail is long, but comparatively shorter and less graduated than in the preceding forms.

The legs are similar and are comparatively a little stouter, but the claws are noticeably longer and less curved, especially the hind claw; the hind toe and claw are equal in length to the middle toe and claw, but not much stouter; while the inner and outer toes are equal and with the claw equal to the middle toe alone.

RYANIA MELANOCEPHALA.

RED-BACKED WREN.

(PLATE 464.)

MUSCICAPA MELANOCEPHALA Latham, Index Ornith. Suppl., p. LII. (after May 30th), 1801 : New South Wales, based on Watling painting No. 187.

Muscicapa melanocephala Latham, Index Ornith. Suppl., p. lii., 1801.

Orange-rumped Fly(catcher) Latham, Gen. Synops., Suppl. II., p. 225, 1801.

Sylvia dorsalis Lewin, Birds of New Holland, pl. 14, 1808 : New South Wales.

Malurus melanocephalus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 222, 1827 ; Gould, Birds Austr., pt. III., Vol. III., pl. 26, June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 333, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 589 ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 296, 1879 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 180, 1901 ; C. A. Barnard, Emu, Vol. IV., p. 68, 1904 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 229, 1904 ; E. D. Barnard, Emu, Vol. V., p. 37, 1905 ; Mathews, Handl. Birds Austral., p. 79, 1908 ; Mellor, Emu, Vol. X., p. 208, 1910 ; C. A. Barnard, *ib.*, Vol. XVI., p. 235, 1917.

Malurus brownii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 223, Feb. 17th, 1827 : Thirsty Sound, South Queensland ; Gould, Birds Austr., pt. III., Vol. III., pl. 27, June 1st, 1841.

Malurus cruentatus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, March 1840 : North-west Coast Australia=Port Essington, Northern Territory ; *id.*, Handb. Birds Austr., Vol. I., p. 334, 1865 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 233, 1904 ; Mathews, Handl. Birds Austral., p. 79, 1908 ; *id.*, Emu, Vol. IX., pp. 11, 61, 1909 ; Broadbent, *ib.*, Vol. X., p. 237, 1911 (N.Q.) ; Barnard, *ib.*, Vol. XI., p. 27, 1911 (Cape York) ; G. F. Hill, *ib.*, Vol. XII., p. 258, 1913 (N.T.) ; Barnard, *ib.*, Vol. XIII., p. 209, 1914 (N.T.) ; *id.*, *ib.*, Vol. XIV., p. 45, 1914 ; H. L. White, *ib.*, Vol. XVI., p. 224, 1917 ; Macgillivray, *ib.*, Vol. XVII., p. 202, 1918 (N.Q.) ; Campbell, *ib.*, Vol. XVIII., p. 184, 1919 (N.Q.) ; Harvey, *ib.*, Vol. XIX., p. 40, 1919.

Malurus dorsalis Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 296, 1879 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 179, 1901 ;



H. Grönvold. del

Witherby & Co

RYANIA MELANOCEPHALA.
(RED-BACKED WREN).

ROSINA CORONATA.
(PURPLE-CROWNED WREN).

RED-BACKED WREN.

Hall, Emu, Vol. I., p. 89, 1902 ; Le Souëf, *ib.*, Vol. II., p. 145, 1903 ; Hall and Rogers, *ib.*, Vol. VII., p. 140, 1908 ; Cornwall, *ib.*, p. 175, 1908.

Malurus cruentatus boweri Ramsay, Proc. Linn. Soc. N.S.W., Ser. II., Vol. I., 1886, p. 1100, Feb. 22nd, 1887 : Derby, North-west Australia ; *id.*, Tab. List Austr. Birds, p. 8, 1888.

Malurus boweri Hall, Emu, Key Birds Austr., p. 17, 1899.

Malurus melanocephalus melanocephalus Mathews, Nov. Zool., Vol. XVIII., p. 362, Jan. 31st, 1912.

Malurus melanocephalus pyrrhonotus Mathews, *ib.* ; Cairns, North Queensland : *id.*, Austral Av. Rec., Vol. I., p. 60, 1912.

Malurus melanocephalus cruentatus Mathews, *ib.*

Malurus melanocephalus melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 45, April 2nd, 1912 : Melville Island, Northern Territory.

Ryania melanocephala melanocephala Mathews, List Birds Austr., p. 228, 1913.

Ryania melanocephala pyrrhonota Mathews, *ib.* ; *id.*, South Austr. Ornith., Vol. 2, p. 57, 1915.

Ryania melanocephala cruentata Mathews, *ib.*

Ryania melanocephala boweri Mathews, *ib.* ; *id.*, South Austr. Ornith., Vol. 3, p. 176, 1918.

Malurus (cruentatus) pyrrhonotus Campbell and Barnard, Emu, Vol. XVII., p. 28, 1917.

DISTRIBUTION. Northern Tropical Australia extending as far south as Derby on the west and reaching outside the tropics to New South Wales in the east.

Adult male. Crown of the head, hind-neck, sides of neck, sides of face, throat, breast, abdomen, sides of body, thighs, under tail-coverts, and under wing-coverts deep black like the upper wing-coverts, upper tail-coverts and tail, both above and below ; flight-quills dark brown with pale edges to the outer webs, under-surface of quills similar but more uniform ; scapulars and middle of back deep orange-red with yellow bases to the feathers. Bill black, eyes brown, feet flesh. Total length 100 mm. ; culmen 9, wing 48, tail 48, tarsus 22. Figured. Collected at Cairns, North Queensland, in October, 1908.

Adult female. Top of head, sides of face, sides of neck and hind-neck mouse-brown ; back, wings, and tail rust-brown ; inner webs of bastard-wing, primary-coverts, and flight-quills dark brown ; tail dark brown on the terminal portion with obsolete cross-bars, and whitish tips and pale margins to some of the feathers ; rectal-bristles black ; the short feathers in front of the eye have black hair-like tips which are bristly in texture ; throat, breast, and abdomen cream-white ; sides of body, thighs, under tail-coverts, under wing-coverts, and inner margins of quills below fawn-colour ; remainder of quill-lining hair-brown ; lower aspect of tail similar to its upper-surface but rather paler. Bill light horn-colour, eyes brown ; feet light yellow-brown. Total length 117 mm. ; culmen 9, wing 45, tail 58, tarsus 20. Figured. Collected at Cairns, North Queensland, in August, 1908.

Immature male. Crown of the head, sides of face, sides of neck, and hind-neck dusky-brown with black centres to the feathers ; entire back, scapulars, and upper tail-coverts bright red ; outer aspect of the wings earth-brown becoming darker on the inner-webs of the flight-quills ; tail dark brown with pale edges to the feathers ; chin, throat, breast, and abdomen white with black tips to many of the feathers ; sides of body and thighs inclining to buff ; under wing-coverts and inner margins of flight-quills pale buff ; remainder of quill-lining hair-brown ; lower aspect of tail

THE BIRDS OF AUSTRALIA.

similar to its upper surface but rather paler. Eyes brown ; bill dark brown above, light brown below, feet brown. Collected at Inkerman, North Queensland, on the 19th of October, 1907.

Nest. Dome-shaped, placed in the grass, with side entrance near the top. Composed of dried grass, and lined with finer material. $4\frac{1}{2}$ inches high by 4 wide.

Eggs.—Clutch, three or four. White, with reddish-brown spots on the larger end. 15 mm. by 12.

Breeding-season. August to February.

LATHAM'S Orange-rumped Fly(catcher) was thus described: "The head and neck in this species are pretty full of feathers, and black; back and rump orange colour or reddish; all the underparts of the body are white, marked with several longish streaks of black on the breast; wings and tail brown; the feathers of the last have the webs much separated and distinct from each other, as in the *Soft-tailed Flycatcher*; legs pale brown. Inhabits *New South Wales*; and is an active species, frequently carrying the tail erect, and expanding the same at the moment it springs from a branch on its prey." As the scientific name, Latham selected *Muscicapa melanocephala*. The above refers to the plumage of a young bird and was probably unknown to him when Lewin gave a good painting of it in full plumage, calling it the Scarlet-backed Warbler, *Sylvia dorsalis*.

Apparently Vigors and Horsfield neglected to refer in this instance to Lewin's work, as they introduced as a new species "*Malurus brownii*." This species is very nearly allied to *M. melanocephalus* in the general disposition of the colours. It differs, however, in the black being more intense, and covering the whole of the underparts, the tail being darker, and the size of the bird much smaller. The bill also is black, which is of a pale yellowish colour in the preceding species. It is marked by Mr. Brown, to whom the Society is indebted for the specimen, as having been obtained at the Bay of Inlets, near the inner entrance of Thirsty Sound, September, 1802.

It was soon recognised that these all referred to plumage changes of the same species, but before that event occurred another complication ensued. Thus Gould described a new species from Port Essington, Northern Territory, under the name of *Malurus cruentatus*, and then figured it in the folio edition as *Malurus brownii*, correcting his error in his "Handbook."

Gould's notes read: "The Black-headed Superb Warbler, which probably inhabits all the south-eastern portion of Australia, is a local species, not being generally diffused over the face of the country, like several other members of the group, but confined to grassy ravines and gullies, particularly those that lead down from the mountain ranges. I obtained several pairs of adult birds in very fine plumage in the valleys under the Liverpool Range, all of

RED-BACKED WREN.

which I discovered among the high grasses which there abound ; but as the period of my visit was their breeding season, I never observed more than a pair together, each pair being always stationed at some distance from the other, and in such parts of the gullies as were studded with small clumps of scrubby trees. This Superb Warbler has many actions in common with the *M. cyaneus*, and like that species carries its tail erect ; it also frequently perches on a stem of the most prominent grasses, where it displays its richly coloured back, and pours forth its simple song. I did not succeed in finding the nest, although I knew they were breeding around me ; it was probably placed among the grasses, but was so artfully concealed as to completely baffle my research. One might suppose the greater development of feather on the back of this species to have been given it as a defence against the damp and dense grasses of the ravines, among which it usually resides ; but from the circumstances of the female not possessing this character of plumage, and the rich garb being only seasonal in the male, this supposition falls to the ground. In their winter dress the sexes very nearly resemble each other ; but the males may always be distinguished by the black colouring of the bill and tail-feathers. The young male of the year has the tail-feathers brown, like the females ; and it is a curious fact that at this age these feathers are much longer than in the adult."

Mr. Chas. Barnard has written in 1908 : " This bird was common about Quaringe (Coomooboolaroo) before the big drought of 1902, but for the next three years not a single specimen was seen. But now a few families are about."

Mr. J. W. Mellor writes : " This pretty black and red Wren is to be found in the Queensland scrubs, also in those of New South Wales. I noted it only in small numbers in the Blackall Ranges about Mt. Cooroy ; it seemed to keep to the long grass about the sides of cuttings and ravines. I saw them on the Tweed River in New South Wales at Tungulbum, where they kept to the moist, grassy open flats, where wire and cutting grass was growing in profusion."

Macgillivray's notes are here quoted : " Mr. McLennan obtained his first nest of this species at Cairns on the 1st December, 1909, where he found the birds rather plentiful. He next met with him at Sedan on 20th February, 1910, in a long Mitchell and cane-grass swamp. A male was secured in brown plumage with a crimson dorsal patch. These birds probably assume their full breeding dress in the spring, rear a brood, lose their livery, and then, with the revival of all vegetable and insect life which follows the summer rains, breed again in their ordinary brown dress. This male was found to have enlarged sexual organs. Irides blackish, bill dark brown, legs reddish-brown, The accompanying females were found to be tending a young bird

THE BIRDS OF AUSTRALIA.

that had only recently left the nest. Another pair was found building a nest, which was afterwards deserted. At Byromine on the 10th April, Mr. McLennan was rather puzzled with these birds when he found them mated and nesting, with both male and female alike in plain brown plumage. He found two nests containing eggs and secured the pair of birds from the second one. Both were brown. Stomach contents in both, small grasshoppers and other insects. Another pair was found building and specimens were secured. The breeding male was also in plain brown dress. They were again noted at Cloncurry and on the Leichhardt, where they were very plentiful, and all brown, in June. Writing from Augustus Downs, on the Leichhardt, under date 4th July, Mr. McLennan states: "One thing I noticed regarding these birds is that the three lots that I found breeding were three pairs only—not a male and two or three females as with other species; but now I am finding them in small flocks." Until after this date Mr. McLennan was of opinion that the plain brown Wren Warblers were a species apart from the other, in which the males were always brown. However, he changed his opinion at this camp, where he found these Wrens in large flocks, as many as thirty in some of them. From one of these flocks he shot two specimens, one of which had a few crimson feathers on the back and a few black ones round the eyes and on the head, showing that the birds were *M. cruentatus*, changing their winter plumage for the early spring breeding. At Cape York this species frequents the open pockets and is never found in the scrub. I have compared fully-plumaged males from Cairns, Cape York and the Gulf country, and can find little, if any, difference."

Harvey Brothers have written about Mackay birds: "This is the only *Malurus* found in our locality. It frequents grassy flats and open forest country, and is plentiful all over the district. Odd nests of this species, containing either eggs or young, are to be found all the year round, but the majority nest between the months of December and March. The nest is composed chiefly of grass stems and *Melaleuca* bark and lined with horse-hair. The male bird assists with the building, but his plain little mate does the lion's share. He also takes part in feeding the young ones, although in one case that came under our notice the young birds were being fed by two females. When the young are very small they are fed almost exclusively on 'lacewings,' but as they become stronger, cicadas and other large insects are preferred. The Wren is a favourite foster parent of the Narrow-billed Bronze Cuckoo, and is also imposed upon by the Square-tailed Cuckoo."

Mr. J. P. Rogers' notes are here transcribed: "Derby, September 10, 1908. These birds feed very late. This evening I saw a party of these

RED-BACKED WREN.

birds going to their roosting place and they were feeding as they went. When travelling late they run on the ground and do not fly. It was nearly dark and I could not distinguish the birds, but knew their call, and knew they were feeding because I could hear their bills snapping as they caught insects. These birds have a short squeaky call when feeding. Have seen one of these birds stay behind its companions when pursuing an insect; suddenly it gave a call and listened, but got no reply; it then got excited and flew round and then into a bush; it then called again and listened, and repeated this several times but got no reply; it then flew after its companions and alighted about twenty-five yards ahead of them and then called loudly; it was answered immediately and at that the bird commenced feeding again. September 16. Saw small family party with two males in full plumage. In other small lots seen there were no full-plumaged males. October 7. Saw four males in breeding plumage chasing each other round a bush; they are very lively here now. November 10. When feeding, these birds frequent every situation. They are to be seen in tall trees, scrub, long or short grass, bare ground and dense tangle of vines, etc., on bank of Parry's Creek. They are equally distributed over all classes of country, being found in numbers on open plains with hardly any bushes, in forest country, in the rank-grassed creek flats and the barren ranges, and seem at home everywhere. This species was very rare at Marngle Creek, but none was seen at Mungi. On my return trip the first of these birds was seen on Jegarra Creek at a point ten miles south of the Fitzroy River. I found them numerous along the banks of the Fitzroy River, usually in dense bushes or patches of cane grass . . . Melville Island, Cooper's Camp. Nov. 20, 1911. This species is numerous and their habits the same as the birds at Derby and Wyndham. Dec. 10. Appears to be mating now. Dec. 20. 10 miles S.E. of Snake Bay. Are numerous here. Feb. 6, 1912. Males are now in fine plumage in pairs.

Ignoring the fundamental principles of species-recognition as utilised to-day, Sharpe considered that the North-western bird should bear the name *dorsalis* Lewin. Ramsay correctly rebuked him, writing: "I cannot agree with Mr. Sharpe (*Brit. Mus. Cat. Bds.*, Vol. IV., p. 297), that Lewin's *Sylvia dorsalis* is identical with the present species; Lewin's birds came from N.S. Wales, being obtained on the Paterson River, and are undoubtedly the *Malurus melanocephalus*, V. and H., as figured by Gould, fol. Vol. III., pl. 26. The measurements also agree. Gould's *M. cruentatus* is much smaller, and was obtained in N.W. Australia. I hold that *M. Brownii*, V. & H. (*Trans. Linn Soc.*, Vol. XV., p. 223) may be the same as Gould's *M. cruentatus*, but is certainly not Lewin's *Sylvia dorsalis*. The facts are that *Malurus melanocephalus* has the back orange-red, and is found as far south as the Clarence and

THE BIRDS OF AUSTRALIA.

Richmond Rivers. It is stated to have been obtained on the Upper Hunter and Paterson Rivers, and extends to the Dawson River, Queensland. As we go further north and reach the Burdekin and Herbert Rivers, the birds are of a deeper tint, *almost of a blood-red* on the back; this variety is found inland as far as the Norman River and Port Essington, whence I have obtained specimens; still further west at Port Dawson and Derby the birds become deepest in colour and of a *clear blood-red* on the back." He then wrote: "Among an interesting series of Red-backed Wrens, I find the skin of a young individual which has a few crimson feathers on the shoulder, back and rump; the remainder and upper tail-coverts and flanks are light fawn colour; wings and tail feathers brown margined with fawn; throat and abdomen white, the sides and adjacent flank feathers and thighs tinged with cinnabar-red, under tail-coverts light fawn colour; bill brown; an ashy spot in front of the eye; two or three of the outer tail-feathers tipped with light fawn colour or light brown. This may, hereafter, be proved to belong to a distinct species, and, if so, should bear the name of its discoverer, Mr. Boyer-Bower, *Malurus cruentatus Boweri*."

In my "Reference List" in 1912, I ranged the species under three subspecies, thus:

Malurus melanocephalus melanocephalus Latham.

New South Wales, South Queensland.

Malurus melanocephalus pyrrhonotus Mathews.

"Has the general coloration of *M. m. cruentatus*, but is slightly larger; wing 44-47 mm.; *M. m. cruentatus*, 38-47 mm. Cairns."

North Queensland.

Malurus melanocephalus cruentatus Gould.

North-west Australia.

Shortly afterward I received specimens from Melville Island and I fixed the type locality of *M. cruentatus* as Derby, North-west Australia, and named

Malurus melanocephalus melvillensis.

"Differs from *M. m. cruentatus* in its much deeper, darker red back. Melville Island."

Melville Island, Northern Territory.

Then Witmer Stone, reviewing the types in the Philadelphia collection, wrote: "North-west Coast, ♂ Port Essington=Type. All the series are labelled *brownii* Vig., the name used in the *Birds of Australia*."

Consequent upon this conclusion, I admitted in my 1913 "List" four subspecies using the generic name *Ryania*, as

Ryania melanocephala melanocephala (Latham).

New South Wales, South Queensland.

RED-BACKED WREN.

Of this form *Sylvia dorsalis* Lewin and *Malurus brownii* Vigors and Horsfield must be cited as synonyms.

Ryania melanocephala pyrrhonota (Mathews).

North Queensland.

Ryania melanocephala cruentata (Gould).

Northern Territory.

I doubtfully attached to this form as a synonym my *M. melanocephalus melvillensis*, as no series from Port Essington was available for comparison.

Ryania melanocephala boweri (Ramsay).

North-west Australia.

Dealing with Cardwell birds, Campbell and Barnard wrote: "The males of this Wren Warbler were always pretty objects, with their black and red colour, as they flew before the observer. The constancy of their dark red (blood-coloured) backs separates them from the southern form, with more orange-coloured back, *melanocephala*. Blood-backed Wrens were observed both on the lowlands and on the tableland, and several nests were secured."

Later, criticising birds from the King River, Northern Territory, Campbell accepted the differences, but demurred at the acceptance of Port Essington as the type locality, in view of Gould's *North-west Coast of Australia*. At the time Gould wrote (and practically to anyone ignorant of the usage of Australians to-day), Port Essington would be correctly ranged as in the North-west of Australia, and Gould's own specimen has on the label "North-west Coast, ♂ Port Essington."

GENUS—ROSINA.

ROSINA Mathews, Austral Av. Rec., Vol. I., pt. 5,
p. 113. Dec. 24, 1912. Type (by original
designation) *Malurus coronatus* Gould.

THIS well differentiated genus was simply diagnosed thus: "Differs from *Malurus* in its much longer, stouter bill with curved-over tip; much stronger feet and the first primary longer, the second proportionately shorter."

The birds are larger, with longer wings, long wedge tail, and long legs and short feet.

The bill is long, almost as long as the head, comparatively broader than that of *Malurus*, the culmen arched with sharply, strongly decurved tip; the nasal groove extends more than one-third the length of the culmen, the operculum pronounced, the nasal apertures linear placed very forward in the groove; there are no nasal bristles, but five very strong rectal bristles; the under mandible is stout, broad at base, the interramal space extending more than one-third the length of the mandible and only partly feathered.

The wing is longer and rounded; the fourth, fifth and sixth primaries are equal and longest, the third a little shorter and equal to the eighth and equalled by the secondaries; the second noticeably less and a little longer than the first, which is half the length of the third.

The tail is very long and strongly wedge-shaped.

The legs are long and stout for this group; the feet stouter than in any of the preceding groups, the claws stouter, otherwise similarly formed.

ROSINA CORONATA.

PURPLE-CROWNED WREN.

(PLATE 464.)

MALURUS CORONATUS Gould, Proc. Zool. Soc. (Lond.), 1857, p. 221, Jan. 12th, 1858 :
Victoria River, Northern Territory.

Malurus coronatus Gould, Proc. Zool. Soc. (Lond.), 1857, p. 221, 1858 ; *id.*, Birds Austr. Suppl., pt. 3, pl. 20, Sept. 1st, 1859 ; *id.*, Handb. Birds Austr., Vol. I., p. 329, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. IV., p. 295, 1879 ; Ramsay, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. I., p. 1089, 1887 ; Vol. II., p. 168, 1887 ; *id.*, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 17, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 178, 1901 ; Hall, Emu, Vol. I., p. 91, 1902 (N.W.A.) ; Kilgour, *ib.*, Vol. IV., p. 42, 1904 (N.W.A.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 233, 1904 ; Rogers, Emu, Vol. VII., p. 155, 1908 (N.W.A.) ; Mathews, Handl. Birds Austral., p. 79, 1908 ; *id.*, Nov. Zool., Vol. XVIII., p. 361, 1912 ; Witmer Stone, Austral Av. Rec., Vol. I., p. 166, 1913 ; Hill, Emu, Vol. XII., p. 258, 1913 (N.T.) ; Campbell and Kershaw, *ib.*, p. 278 (N.T.) ; Macgillivray, *ib.*, Vol. XIII., p. 172, 1914 (N.T.) ; Barnard, *ib.*, Vol. XIV., p. 45, 1914 (N.T.) ; H. L. White, *ib.*, p. 59 (eggs) ; *id.*, *ib.*, Vol. XVI., p. 224, 1917.

Malurus coronatus macgillivrayi Mathews, Austral Av. Rec., Vol. II., pt. i., p. 9, Aug. 2nd, 1913 : Augustus Downs, Leichhardt River, Gulf of Carpentaria.

Rosina coronata coronata Mathews, List Birds Austr., p. 227, 1913 ; *id.*, South Austr. Ornith., Vol. 3, p. 174, 1918.

Rosina coronata macgillivrayi Mathews, *ib.*, p. 228, 1913.

DISTRIBUTION. North-west Australia from Derby, through Northern Territory, to Leichhardt River, West Queensland.

Adult male. Crown of the head and nape bright lilac with an irregular patch of black in the middle ; back and wings pale rust-brown like the rump ; lesser upper wing-coverts ash-grey ; bastard-wing and primary-coverts dark brown with pale edges ; outer aspect of flight-quills like the back, inner webs dark brown with pale inner edges ; upper tail-coverts and tail verditer-blue with obsolete cross-bars on the latter, some of the feathers tipped with, and the outer ones margined with, white along the outer web ; lores and sides of face deep black ; rictal bristles black ; the feathers in front of the eye bristly in structure ; chin and throat cream-white ; breast, abdomen,

THE BIRDS OF AUSTRALIA.

sides of body, thighs, under tail-coverts, and under wing-coverts pale fawn colour; under-surface of flight-quills dark brown, slightly paler on the edges; lower aspect of tail similar to its upper-surface. Bill black, eyes brown, legs light slate. Total length 143 mm.; culmen 10, wing 55, tail 72, tarsus 25. Figured. Collected on Augusta Downs, Leichhardt River, Gulf of Carpentaria, North Queensland, on the 24th of June, 1910, and is the type of *Malurus coronatus macgillivrayi*.

Male immature. Crown of the head, hind-neck, sides of neck, back, upper tail-coverts and wings burnt sienna, inner webs of flight-quills hair-brown; tail verditer-blue, the outer feathers margined with white on the outer webs; lores and feathers encircling the eye buffy-white; rictal bristles black; the feathers in front of the eye bristly in texture and blackish in colour; throat and breast cream-white; abdomen, sides of body, thighs, under tail-coverts, and wing-coverts fawn-colour; under-surface of flight-quills, hair-brown with buffy-white margins; lower aspect of tail similar to its upper-surface. Bill blackish-brown, eyes brown, legs light slate. Total length 153 mm.; culmen 10, wing 51, tail 70, tarsus 25. Figured. Collected at Caloola, Leichhardt River, Gulf of Carpentaria, North Queensland, on the 14th of June, 1910.

Adult female. Similar to the above.

Nest. "A bulky structure, composed of strips of paper bark and blades of cane grass, lined with fine grass-roots; the opening at the side, near the top, has a platform of grass built out under it for a distance of almost 3 inches." (H. L. White.)

Eggs. "Clutch three, pinkish-white marked all over, but principally at the larger end, with ill-defined spots and splashes of dark brownish-pink. 15-16 mm. by 13." (*ib.*)

Breeding-season. January to June (July to December).

I AM inclined to agree with Gould when he wrote: "Charming as are many of the smaller Australian birds, I think the present species is entitled to the palm for elegance and beauty, not only among the members of its own genus, numerous and beautiful as they really are, but among all other groups of birds yet discovered. The charm too, is considerably enhanced by the great novelty in the style of its colouring; for in how few birds do we find the lovely lilac tint which encircles and adorns the head of this bird; a similar tint, it is true, appears in the nape of the Bower-birds (*Chlamydoderae*); but I scarcely know of a third instance."

I would like to add the third instance is the Pink-eared Duck (*Malacorhynchus membranaceus*).

Gould continued with a personal narrative which I have also pleasure in copying and in confirming: "Having premised thus much respecting this new *Malurus*, I now come to the painful task of naming its collector; I say painful, because the gentleman who shot and brought it to this country has fallen, like many other Australian explorers, a victim to the climate of that country, congenial to Europeans as it generally is. It will be recollected by all those who take an interest in scientific explorations, that Mr. Elsey accompanied A. C. Gregory, Esq., as surgeon and naturalist on

PURPLE-CROWNED WREN.

his great journey from the Victoria River to Moreton Bay. Soon after his return to England it became evident that he had contracted the disease called *hæmoptysis*, which speedily obliged him to remove to a warmer climate; he selected one of the West Indian Islands, and, on arriving, commenced his investigations with his usual spirit, but he rapidly became worse, and science shortly had to deplore the loss of one of her most enthusiastic votaries. . . The little I saw of this gentleman impressed me with the belief that he had a true love for nature; and, had he been spared, I feel assured he would have distinguished himself greatly in one or other branch of the natural sciences."

Gould only added: "The *Malurus coronatus* is an inhabitant of the countries bordering the Victoria River. Both sexes were procured, and they now form part of the collection in the British Museum."

Notwithstanding this clear statement, over fifty years afterwards it was claimed by two prominent Australian ornithologists as a "new" bird for the Northern Territory, and a note was given: "A female only of the latter was obtained, which appears darker in general coloration than Gould's figure (*Birds of Australia*, Suppl. pl. 20)." They may have been misled through the fact that Rogers had found it numerous at Wyndham in the North-west, and previously on the Fitzroy River, near Derby. Hall had printed Rogers' notes on his first acquaintance: "I showed these skins to a black boy who resides up the river. He says they are always found in the billabongs high up the Margaret River, a tributary of the Fitzroy and about 150 miles from here. A black boy from the coast to the north of Derby did not know the species. I got the specimens in dense long grass and found them very shy. When feeding, it searches amongst dead leaves upon the ground, upon which I found it feeding. It rapidly hops and occasionally flies a few paces when feeding. It also takes insects, like Flycatchers, upon the wing. On 7/11/00, I noticed two males and one female; the female securing a large grub, the duller of the males immediately followed her, and, watching his opportunity, secured one end of it. After a tug for mastery during thirty seconds, he robbed her and flew away. A few seconds later the finer-plumaged male was preening her feathers."

Bowyer-Bower's notes read: "These birds are found in a bamboo-like growth, some times many yards from the riverside. . . They are very inquisitive, the females coming within two or three yards of one. They all have the power of raising the feathers of the crown of the head, which greatly increases the apparent size of that part. The females seem to lead the parties or families, and they are never far from the water's edge. While moving along, they constantly utter a call 'chirrip' which seems to be repeated by each

THE BIRDS OF AUSTRALIA.

member. The number of these parties varies from five to seven. The tail is carried much like *Malurus*, but not so far over the back. They often take insects on the wing, but appear to live on larger ones than *Ryania*. The male is shy when in adult plumage, but he is truly a lovely bird, and the colours of the head show out in the light to a remarkable extent. They have no song, and the 'chrrip' uttered while moving along in flocks is far stronger, and easily recognised from that of *Ryania*. They always select long rushes or bamboos, up the stems of which they climb with ease; they also feed more on the wing than *Ryania*."

Kilgour writing of the Ord River, near Wyndham, also stated: "Almost wherever there is water the Purple-crowned Wren (*Malurus coronatus*) is to be seen. It is indeed a beautiful little creature, and has an exquisite little collection of notes."

Macgillivray has recorded: "Mr. McLennan first met with this fine large *Malurus* on the Leichhardt River, 25 miles beyond Caloola Station, where it inhabited the cane-grass growing near the water's edge. This river may be regarded as marking its eastern range. It was common in the cane-grass and pandanus along the Gregory River. Its call note is very loud, and like that of *Sericornis frontalis* of southern parts. When he was standing still, this bird came within 4 feet of Mr. McLennan, and showed no sign of fear."

Barnard added: "A purple-crowned *Malurus* was very plentiful in the cane-grass along the river from Borroloola to the tableland divide. From a number of skins sent it was identified as above. This bird was recently discovered by Mr. W. McLennan while collecting for Dr. Macgillivray on the Leichhardt River. Eggs of this bird were taken by me and described by Mr. White of Belltrees. This bird was noted as the foster-parent of *Cacomantis variolosus* (*C. pyrrhophanus dumetorum*)."

H. L. White then described the nest and eggs, and wrote: "the coloration of the crown of the full-plumaged male being of a distinct shade to that of the North-west form; in my opinion, Mr. Mathews was justified in separating the two."

It may be here noted that although the species was first described from Northern Territory, the name is applicable to the North-west form that occurs at Wyndham, as that is faunally a part of the western Northern Territory as regards many bird forms.

Ramsay recording Derby birds collected by Cairn wrote: "Several specimens of this beautiful and rare species were obtained inland. I believe these are the first recorded since the types described by Mr. Gould were obtained," and then added from Bowyer-Bower's collection at the same place

PURPLE-CROWNED WREN.

"Many specimens of this beautiful species were obtained during the months of September and October; judging from some young individuals they must have been breeding as early as June. During the first year the young males resemble the females in plumage, with the exception of the ear-coverts."

Although this bird was known from the North-west and the Northern Territory, no subspecies were named until I received specimens from their furthest east point, when I proposed:

Malurus coronatus macgillivrayi.

"Differs from *M. c. coronatus* in having a bluish-mauve crown to its head, not pinkish-mauve, and the black collar on the nape only indicated. Augustus Downs, Leichhardt River, Gulf of Carpentaria," and in my 1913 "List" I used the genus *Rosina* allowing:

Rosina coronata coronata (Gould).

Northern Territory, North-west Australia.

Rosina coronata macgillivrayi (Mathews).

Interior of Mid-Queensland.

I admit the above, but restrict *R. c. coronata* to Northern Territory and the adjoining parts of the North-west Australia, and separate:

Rosina coronata rogersiana subsp. nov.

"Differs from *R. c. coronata* (Gould) in its slightly paler coloration generally, the pinkish-mauve crown being slightly darker. Derby."

North-west Australia.

GENUS—STIPITURUS.

STIPITURUS Lesson, Traité d'Ornith., livr. 6, p.

414, Feb. 13, 1831. Type (by monotypy) *Muscicapa malachura* Shaw.

VERY small birds with short bills, short rounded wings, extraordinary tail of six filamentose feathers, and long legs and small feet.

The bill is short and stout for the size, the culmen arched, laterally compressed with little basal expansion; the nasal groove short, the linear nostrils placed anteriorly in the groove, strongly operculate, a few small nasal bristles not projecting over the nostrils; six rictal bristles, strong and prominent; under mandible stout, interramal space small, less than half the length of the mandible and fully feathered.

The wing is short and rounded, the first primary short, less than half the third which is less than the ninth, and just exceeds the secondaries, the second being shorter; the fourth to eighth subequal and longest.

The tail is very long, and is composed of six very long narrow feathers forming a long wedge; the feathers showing disintegrate webbing, making the genus unique in character.

The legs are long for the size of the bird and slender, the tarsus booted in front and bilaminate posteriorly; the feet are small, the hind toe and claw longer than the middle toe and claw, the hind claw being longer; the outer and inner toes are subequal and with the claw equal to the inner toe alone.

The relationships of this peculiar little form appear to be with *Cisticola*, and I suggest it is descended from an ancestral Cisticoline form which reached Australia and penetrated into Tasmania, and that the recent *Cisticola* is a late immigrant which has extended over Australia since Tasmania was separated. It is noteworthy that *Stipiturus* is practically restricted to extra-tropical Australia and is found in all that area, including Tasmania.

Key to the Species.

Ear-coverts blue, crown of head rufous	<i>ruficeps.</i>
Ear-coverts brown, crown striped with dark brown	<i>malachurus.</i>



H. Grönvold. del

Witherby & Co

STIPITURUS MALACHURUS
(EMU-WREN).

STIPITURUS MALACHURUS.

EMU-WREN.

(PLATE 465.)

MUSCICAPA MALACHURA Shaw, Trans. Linn. Soc. (Lond.), Vol. IV., p. 242, May 24th, 1798 :
New South Wales.

Muscicapa malachura Shaw, Trans. Linn. Soc. (Lond.), Vol. IV., p. 242, 1798 ; Latham,
Suppl. Index Ornith., p. 211, 1801.

Motacilla fimbriata Wilkes, Encycl. Londinensis, Vol. XVI., p. 102, 1817 : based on Le
Vaillant, Ois. d'Afrique, Vol. III., pl. 130, f. 2 : New South Wales, cf. Austral Av.
Rec., Vol. IV., pt. 6, p. 143, 1921.

Malurus palustris Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XX., p. 213, May 30th,
1818 : new name for *M. malachura* Shaw.

Malurus gularis Stephens in Shaw's Gen. Zool., Vol. XIII., pt. II., p. 224, Feb. 18th,
1826 : new name for *M. malachura* Shaw.

Malurus malachurus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 224,
1827.

Stipiturus malachurus Lesson, Traité d'Orn., livr. 6, p. 415, 1831 ; Gould, Birds Austr.,
pt. III. (Vol. III., pl. 31), June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 339,
1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat.
Birds Brit. Mus., Vol. VII., p. 100, 1883 ; Legge, Papers Proc. Roy. Soc. Tasm.,
1886, p. 240, 1887 ; *id.*, *ib.*, 1887, p. 90, 1888 (Tas.) ; Ramsay, Tab. List Austr.
Birds, p. 8, 1888 ; Kearland, Trans. Roy. Soc. South Austr., Vol. XXII., p. 176,
1898 ; Hall, Key Birds Austr., p. 23, 1899 ; Campbell, Nests and Eggs Austr.
Birds, Vol. I., p. 214, 1901 ; Milligan, Emu, Vol. II., p. 71, 1902 (W.A.) ; *id.*, *ib.*,
Vol. III., p. 17, 1903 (W.A.) ; Carter, *ib.*, Vol. III., p. 39, 1903 (W.A.) ; Fletcher,
ib., Vol. IV., p. 16, 1904 (Tas.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p.
242, 1904 ; A. G. Campbell, Emu, Vol. IV., pp. 112-146, 1905 (Vic. and Tas.) ; Batey,
ib., Vol. VII., p. 6, 1907 (Vic.) ; Mathews, Handl. Birds Austral., p. 79, 1908 ;
Carter, Emu, Vol. VIII., p. 105, 1908 (W.A.) ; Campbell, *ib.*, note ; Ingle, *ib.*, Vol.
X., p. 123, 1910 (Vic.) ; Littler, Handb. Birds Tasm., p. 31, 1910 ; Cleland, Emu,
Vol. XI., p. 87, 1910 (Food.) ; *id.*, *ib.*, Vol. XII., p. 12, 1912 (Food.) ; Fletcher,
ib., Vol. XII., p. 168, 1913 (Tas.) ; *id.*, *ib.*, Vol. XIII., p. 50, 1913 (Tas.) ; S. A.
White, *ib.*, Vol. XIV., p. 142, 1915 (Mallacoota, Vic.) ; Campbell, *ib.*, p. 173, 1915
(N.Q.) ; Fletcher, *ib.*, p. 213 (Tas.) ; Purnell, *ib.*, Vol. XV., p. 43, 1915 (Vic.) ;

THE BIRDS OF AUSTRALIA.

- Barrett, *ib.*, p. 48 (Tas.); Fletcher, *ib.*, Vol. XVIII., p. 98, 1918 (Tas.); Le Souëf and Macpherson, *ib.*, Vol. XX., p. 88, 1920 (N.S.W.).
- Malurus emitis* Ewing, Tasm. Journ. Sci., Vol. I., p. 53, 1841 : new name for Shaw's bird.
- Stipiturus mallee* Campbell, Emu, Vol. VIII., pt. I., p. 34, July 1st, 1908 : Mallee, Victoria; Howe, *ib.*, Vol. IX., p. 232, 1910; *id.*, *ib.*, Vol. X., p. 336, 1911; Campbell, *ib.*, Vol. XI., p. 247, 1912; Wilson, Emu, Vol. XII., p. 36, 1912; Howe and Tregellas, *ib.*, Vol. XIV., p. 73, 1914.
- Stipiturus westernensis* Campbell, Vol. XI., pt. 3, p. 222, Jan. 1st, 1912 : (Ellensbrook), West Australia; *id.*, *ib.*, p. 246; H. L. White, *ib.*, Vol. XII., p. 46, 1912.
- Stipiturus malachurus malachurus* Mathews, Nov. Zool., Vol. XVIII., p. 362, 1912; *id.*, List Birds Austr., p. 229, 1913.
- Stipiturus malachurus mallee* Mathews, Nov. Zool., Vol. XVIII., p. 363, 1912; *id.*, List Birds Austr., p. 229, 1913.
- Stipiturus malachurus littleri* Mathews, Nov. Zool., Vol. XVIII., p. 363, Jan. 31st, 1912 : Tasmania; *id.*, *ib.*, List Birds Austr., p. 229, 1913; Ashby, Emu, Vol. XIX., p. 303, 1920.
- Stipiturus malachurus rothschildi* Mathews, Nov. Zool., Vol. XVIII., p. 363, Jan. 31st, 1912 : (Albany), West Australia.
- Stipiturus malachurus tregellasi* Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 45, April 2nd, 1912 : Frankston, Victoria; Mathews, List Birds Austr., p. 229, 1913; Belcher, Birds Geelong, p. 287, 1914; Ashby, Emu, Vol. XIX., p. 303, 1920.
- Stipiturus malachurus westernensis* Mathews, Austral Av. Rec., Vol. I., p. 45, 1912; *id.*, List Birds Austr., p. 229, 1913; Carter, Ibis, 1921, p. 62.
- Stipiturus malachurus hartogi* Carter, Bull. Brit. Orn. Club, Vol. XXXVII., p. 6, Oct. 24th, 1916 : Dirk Hartog Island, Western Australia; *id.*, Ibis, 1917, p. 597, pl. XI.; Campbell, Emu, Vol. XVIII., p. 262, 1919; Whitlock, *ib.*, Vol. XX., p. 182, pl. XVIII., 1921; H. L. White, *ib.*, p. 187.
- Stipiturus malachurus media* Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 45, Dec. 8th, 1919 : Gnowangerup, South-west Australia; Carter, Ibis, 1921, p. 62.
- Stipiturus malachurus halmaturina* Parsons, South Austr. Ornith., Vol. V., pt. I., p. 15, Jan. 1st, 1920; Kangaroo Island, South Australia; Ashby, Emu, Vol. XIX., p. 303, 1920.
- Stipiturus malachurus intermedius* Ashby, Emu, Vol. XIX., pt. IV., p. 303, May 29th, 1920 : Mt. Compass, South Australia.

DISTRIBUTION. Extra-tropical Australia and Tasmania, ranging northwards in the east to Cardwell and Bellenden Ker Plains ? and in South-west Australia.

Adult male. Fore-part of head dull rufous with dark centres to the feathers on the hinder-crown; hind-neck, mantle, back, and scapulars blackish with grey or pale ferruginous margins to the feathers; upper wing-coverts similar but the margins of the feathers deeper in colour; flight-quills hair-brown slightly edged with ferruginous on the outer webs and more broadly margined with cinnamon on the inner ones; upper tail-coverts similar to the back; tail blackish-brown, the webs of the feathers narrow, disintegrated and transparent; rectal bristles black, well developed, and directed forward; a slightly indicated supra-loral line of pale blue,

EMU-WREN.

which extends over the eye ; the short feathers round the eye whitish ; sides of face similar to the crown of the head with whitish shaft-lines to the feathers ; throat, cheeks, and fore-neck pale lavender-blue ; sides of neck, a band across the breast, sides of body, thighs, and under tail-coverts pale ferrugineous, remainder of breast and abdomen white ; axillaries, under wing-coverts, and inner margins of flight-quills below cinnamon, remainder of quill-lining hair-brown ; lower aspect of tail whitish at the base, the remainder similar to its upper-surface. Eyes brown, feet light horn ; bill black. Total length 170 mm. ; culmen 8, wing 43, tail 116, tarsus 20. Figured. Collected at Franketon, Victoria, on the 17th of May, 1909, and is the type of *Stipiturus malachurus tregellasi*. (Bottom left-hand figure.)

Adult female. Crown of head and hind-neck black with olive-grey margins to the feathers, the margins becoming dark ochreous on the back and wings ; flight-quills hair-brown edged with buffy-white on the inner webs ; tail blackish, the webs disintegrated, and transparent ; sides of face rufous-brown minutely dotted with buffy-white ; rictal bristles black and well developed ; chin, throat, fore-neck, sides of breast, sides of body, thighs, and under tail-coverts cinnamon-rufous like the axillaries, under wing-coverts, and inner margins of the quills below ; remainder of quill-lining hair-brown ; breast and abdomen white ; lower aspect of tail whitish at the base, the remainder blackish like its upper-surface. Eyes hazel ; feet dark yellow ; bill horn. Total length 163 mm. ; culmen 8, wing 42, tail 105, tarsus 19. Figured. Collected at Selby, Victoria, on the 25th of December, 1911. (Top right-hand figure.)

Adult male. Upper-parts dusky-brown, all the feathers mesially streaked with dark brown ; quills dark brown edged with rufous-brown ; tail-feathers disintegrated, are blackish or rufous-brown ; forehead and sides of crown chestnut ; throat a supraloral streak, which is continued over the eye, and foreneck pale blue ; remainder of the under-surface, including the under wing-coverts and under tail-coverts, tawny-rufous. Total length 127 mm. ; culmen 13, wing 39, tail 83, tarsus 15. Collected at Hopetown Mallee, Victoria, in 1906, and is the type of *Stipiturus mallee* Campbell.

Adult female. General colour above dusky greyish-brown with dark brown shaft-streaks, inclining to rufous-brown on the wing-coverts ; primary and secondary-quills uniform pale brown ; tail dark brown with black shafts, which are somewhat paler at the base ; forehead and fore-part of head inclining to dark rufous ; ear-coverts brown with white shaft-streaks ; cheeks, chin, sides of neck, and entire under-surface bright cinnamon-rufous, becoming paler and less rufous on the abdomen and under tail-coverts ; under wing-coverts and inner edges of quills also rufous ; all the feathers of the under-parts have dull black bases. Collected in the Mallee, Victoria.

Adult male. Crown of the head and nape pale fulvous-brown with dark elongated centres to the feathers ; mantle, upper-back, and scapulars blackish-brown with drab-grey margins to the feathers, becoming more uniform grey on the lower back, rump, and upper tail-coverts where the feathers have blackish bases ; upper wing-coverts and flight-quills dark brown, or blackish, the feathers margined with grey ; tail blackish, slightly paler on the margins of the feathers, which are transparent and disintegrated ; rictal bristles black with white bases ; sides of face, including the eye, brown with bluish-white shaft-lines to the feathers ; chin, throat, and fore-neck lavender-blue with blackish bases to some of the feathers ; sides of neck, sides of body, thighs, and under wing-coverts rufous-buff, with blackish bases to the feathers on the flanks, middle of breast, middle of abdomen, and under tail-coverts paler than the flanks and inclining to whitish, the bases of the feathers are blackish like the flanks ; under-surface of flight-quills hair-brown ; lower aspect

THE BIRDS OF AUSTRALIA.

of tail whitish at the base, the remaining portion similar to its upper-surface. Eyes reddish; feet and legs yellow, soles bright yellow, bill purple-horn. Total length 180 mm.; culmen 8, wing 40, tail 122, tarsus 21. Figured. Collected on Dirk Hartog Island, West Australia, on the 7th of May, 1916, and is the type of *Stipiturus malachurus hartogi*. (Bottom figure.)

Adult female. General colour of the upper-surface drab-grey with dark brown, or blackish elongated centres to the feathers, including the top of head, back, and wings, becoming more uniform on the lower-back, and rump; flight-quills dark hair-brown with pale edges both on the outer and inner webs; tail dark brown, the webs of the feathers transparent and disintegrated; rictal bristles black with white bases; eye-ring whitish; sides of face drab-grey with whitish shaft-streaks; lores, throat, breast, abdomen, sides of body, under tail-coverts, and under wing-coverts pale cinnamon-buff with blackish bases to most of the feathers; under-surface of flight-quills hair-brown; base of tail white; the remainder similar to its upper-surface. Eyes pale reddish; feet brownish, legs yellow; bill purple-horn. Total length 150 mm.; culmen 7, wing 40, tail 100, tarsus 19. Figured. Collected on Dirk Hartog Island, West Australia, on the 28th of April, 1916. (Middle right-hand figure.)

Immature female (nearly adult). General colour of the upper-surface drab-grey with blackish centres to the feathers and dark dusky bases including the top of the head, back, and wings; flight-quills blackish with pale margins, the innermost secondaries somewhat darker than the primaries and edged with fulvous; upper tail-coverts pale at the tips; tail feathers blackish; lores whitish; sides of face grey, more or less speckled with white; rictal bristles black; chin, throat, breast, sides of body, abdomen, thighs and under-tail coverts cinnamon like the under wing-coverts; under-surface of flight-quills blackish as is also the lower aspect of the tail. Bill purple horn. Eyes hazel. Feet and legs purplish flesh. Collected at Gnowangerup, South-west Australia on February 13th, 1919.

Nest. Round, with side entrance, loosely put together and constructed of grass and lined with finer grass. 4 to 6 inches high by 3 wide.

Eggs. Clutch three to four, white freckled or spotted all over with bright red, especially at the larger end. 17 mm. by 12.

Breeding-season. August to December.

GENERAL Davies gave a full account of this bird, writing: "Having had the good fortune to procure fine specimens of the male and female of a singular bird from New South Wales which the natives of that country call the *Merion Binnion* or Cassowary Bird. . . All the information I have been able to procure respecting it, from Governor Philip, Colonel Nepean, and other gentlemen, who resided some years in New South Wales, is, that it is found about Sidney and Botany Bay in marshy places, abounding with long grass and fine rushes, in which it hides itself very dexterously; that, when disturbed, its flight is very short, like that of a grasshopper; and that it no sooner alights than it runs with such great agility that many who have been confident of their having covered birds with their hats, have, to their great surprise, seen them again take wing at no great distance, so that they are always difficult to catch. . . The natives of New South Wales give

EMU-WREN.

the name of *Merion Binnion* to this bird, on account of the great resemblance of its tail to the feathers of the Cassowary."

As Davies, though a wonderful collector, great artist and fine ornithologist, did not profess systematics, he allowed G. Shaw, the Keeper of Zoology of the British Museum, to give a Latin designation to this extraordinary species.

The next note is that published by Vigors and Horsfield: "This bird" Mr. Caley observes, "is called *Emu Bird* by the colonists. The native name is *Wawguljelly*. I have never known it called *Merion Binnion*, as published in the *Linnean Society Transactions*. The native name of an *Emu* is *Murring*. The species is an inhabitant of scrubs, which are principally composed of different kinds of *Banksia*, particularly where the ground is moist or inclining to be marshy. The natives tell me it may be run down. It has a small shining black eye, with a hazel-brown iris."

Gould's notes read: "The Emu-Wren is especially fond of low marshy districts covered with rank high grasses and rushes, where it conceals itself from view by keeping near the ground in the midst of the more dense parts of the grassbeds. Its extremely short round wings ill adapt it for flight, and this power is consequently seldom employed, the bird depending for progression upon its extraordinary capacity for running, in fact, when the grasses are wet from dew or rain, its wings are rendered perfectly unavailable. On the ground it is altogether as nimble and active, its creeping, mouse-like motions, and the extreme facility with which it turns and bounds over the surface, enabling it easily to elude pursuit, and amply compensating for the paucity of its power of flight. The tail is carried in an erect position, and is even occasionally retroverted over the back."

Ramsay later found its eggs and gave the following notes: "The only note of the bird, besides a slight chirp when flushed and separated, is a slight twitter, not unlike a faint attempt to imitate the *Malurus cyaneus*. While in the swamp, which at the time was nearly dry, I observed several separate flocks; of these some were hopping along the ground, picking up something here and there; others, whose appetites seemed appeased, were creeping along through the reeds about a foot from the ground, but as the reeds thickened I soon lost sight of them. They seldom took wing, except when disturbed, and not always then, seeming very averse to showing themselves. While watching them I observed one now and then hop to the top of a tall reed as if to get a glimpse of the world above. Upon coming suddenly upon a flock and following them, they keep to the reeds just in front of you, and never take wing unless hard driven, when they separate and do not collect again for some time."

THE BIRDS OF AUSTRALIA.

Captain S. A. White has written me: "The only place in which I have met with this bird in South Australia is the Myponga District, between thirty and forty miles south of Adelaide. There in the thickly timbered hills, dense masses of *Leptospermum* and other damp-loving vegetation grow in the wet gully flats and amidst this mass of undergrowth this strange little bird is to be met with, but it is so shy and timid that many who have lived in the district for a lifetime were not aware of its presence. It was only by means of keeping within cover and calling incessantly for quite a time that I was able to procure specimens. At the slightest sound they darted like mice to cover and could not be persuaded to show themselves on the outskirts of the cover again."

Parsons wrote of the Kangaroo Island form: "We found that at the time of our visit (October, 1919) these little birds were breeding, and most of the adult birds were accompanied by their brood of three young ones, with tails varying in length from about $\frac{1}{2}$ inch to almost full length. Our experience of the situation these birds prefer was contrary to expectations. We did not find any birds in the cool, damp gullies, but in every instance they were encountered on the tops of dry, inhospitable flat-topped hills, covered with a low growth of 'bull oak,' 'broombush' and 'grass-tree.'"

Mr. L. G. Chandler has written me: "These beautiful birds were once numerous around Bayswater and Croydon. With the exception of a pair at Croydon in October, 1908, I have not seen them in that locality for years. Bush fires, I think, helped to thin their numbers, for having such weak wing power they have little chance of escape. At Frankston they are plentiful, and being of a timid disposition and inhabiting as they do the dense, rank grassed lands, one is likely to under-estimate rather than over-estimate their numbers. Walking through a tangle of grass and scrub up to the shoulders one is attracted by a few weak notes a short distance away. Presently he may catch sight of a tiny form creeping through the bushes, and though the birds be squeaking all around him, not another glimpse can be obtained of them. The open bayonet-grass country presents a better opportunity for getting into closer contact with the birds. Any swampy locality—where the bayonet-grass grows—seems to find favour in their eyes as a feeding ground. At Frankston on April 22nd, 1908, I met with them on the side of a hill, where the vegetation consisted chiefly of stunted scrub, bayonet and other grasses with bunches of small saplings interspersed. They were feeding in company with the Blue Wrens and the two families seemed on friendly terms. It is a difficult matter to flush these birds, for they seem to trust almost entirely to their powers of running and hiding before taking flight. When they rise, they endeavour to fly side on and slightly to the

EMU-WREN.

wind, for their tail feathers would upset them if they flew with the breeze. They do not attempt a long flight at any time, rarely fluttering more than twenty yards. Once they have settled, it is almost impossible to flush them again. On Oct. 4th, 1908, at Frankston, in a thicket of *Melaleuca* and *Leptospermum*, a pair of birds were flying around us as though a nest was concealed not far away. They would advance from stem to stem and peer curiously at us through the bushes and then retreat again, uttering weak squeaky notes. We searched the scrub well in the locality and watched the birds for a considerable time, but they did not betray the nest. Their twitter resembles slightly the song of the Blue Wren, but it is very weak in comparison."

Mr. Edwin Ashby's notes read: "This active little bird was very common in swampy ground near Cranbrook, Victoria. They frequented some dense low bushes not more than three or four feet high, perhaps five or six through. The birds would fly from the top of one bush to the base of the next, only a few feet, and commence rapidly ascending the bush, and traversing it from one side to the other; suddenly the bird would emerge out of the top on the far side, and immediately fly to the base of the next bush, and this restlessness made them difficult to shoot. It was most remarkable how they made their way with such rapidity through the very dense bushes and yet their long fragile tails were uninjured."

Mr. J. W. Mellor's notes confirm the preceding, and he states he noted them on a sedgy flat at Ourimbah in the Gosford District in New South Wales; he saw them just outside Launceston, Tasmania, and that formerly they were plentiful at the Reed-beds, South Australia, but that recently they have never been met with. They may exist in the swampy and grassy localities near Mount Gambier in the south-east of the State (South Australia)."

Mr. Frank Littler wrote me about the Tasmanian form: "Prefers thick, scrubby tracts, with plenty of undergrowth and long grass, in which it is able to conceal itself with ease. This fact and an extreme nimbleness of foot explain the reason why it is so seldom seen. The wings are very little used; in fact, there is hardly any need to use them, as nearly the whole of the life of the bird is passed among tangled thickets. Its food consists of insects of all descriptions, both winged and creeping. These are procured from the ground and on the limbs of the fallen trees. It rarely ascends into the trees. It backs into the nest and its tail may be seen over the bird's back."

Miss J. A. Fletcher has published several accounts of this bird in the *Emu*, to which reference may be made, but I here transcribe the notes sent

THE BIRDS OF AUSTRALIA.

me some time ago. Miss Fletcher wrote: "These birds are fairly common in this district. As a general rule each pair has its own haunt about which it keeps throughout the year. I have seen as many as five together in the autumn. Probably these were the young of last season not yet driven off by the parents. The rustling noise they make among the reeds often betrays them long before their presence would otherwise be known, or their 'Tit-like' call recognised. When feeding quietly together their twittering resembles that of the *Acanthizae*. Their warning call also is very like that of the Tasmanian Tit, but the song of the male sounds like a feeble edition of that of the *Maluri*. As far as my observations have gone, I find that the Emu-Wrens are slow builders and also that the female does all the work. The male follows her as she collects and flies to the nest with material, but does not assist his mate otherwise than by cheering her with a song. When flying with a piece of grass, she rolls it first into a neat bundle, and does not fly with a long piece hanging, after the manner of some birds. On reaching the swamp she drops into the centre of a tussock, slips out the other side, and continues so from clump to clump until the nesting site is reached. So far in this district these sword-grass tussocks appear to be the favourite places for their nests . . . I found a nest with young ones; even when I touched the tussock the nest was placed in, and the young wrens cried out, it was a few seconds before I found it. It was situated in a small sword-grass clump on the outside of the larger rushes and just on the edge of a sheep track through the bog. When building, the bird must have alighted on a Pampas clump and run along the ground to its nest. As far as I could judge the chicks were about four or five days old. Their eyes were closed and the feathers were showing on the wings and displacing the long black down. Every time the reeds rustled the little things opened their mouths . . . The parents came around and watched with anxiety, and after a time gained confidence and fed the youngsters while we watched. Next day the chicks had their eyes open which were black; the tail was developing; they were feathering freely and the feathers were showing a yellowish tinge, those on the throat being bluish. . . Occasionally a bird will mount in a hopping manner to the top of a grass stem and peer round and then drop below the reeds again. Short flights are sometimes taken after an insect hovering over a few inches of water. . . I have also seen them picking up grass seeds. I have sometimes pursued them from clump to clump till finally, when the cover was exhausted, they have suddenly turned and flit past me in a nervous jerky manner and dropped into shelter again."

After this, Miss Fletcher made exhaustive studies of this bird, her results appearing in the *Emu* from time to time and reference can be made

EMU-WREN.

for the complete details. I extract the following items: "Each pair of birds keeps to its particular haunt throughout the year. After travelling some distance in search of food, the birds will invariably be found back at the home-corner in the evening or morning. . . The young of the last brood remain with their parents until May or June, when they are driven off to seek companions and a haunt of their own. They are not permitted to remain in the area which their parents inhabit. Though generally considered to be weak flyers, I find that, should occasion arise, these birds are capable of sustained flight. Particularly is this the case with the female. The angle at which the tail is held previous to alighting rather gives the impression that its author is exhausted, but this is not so. The male Emu-Wren—or 'Blue-beard' as he is called locally—retains his blue throat throughout the year, and is never seen ragged and unkempt as are the males of the Wren Warblers (*Malurus*). The manners and habits of the birds under notice appear intermediate between those of the *Acanthizae* and the *Maluri*. In the strain of their feeble song, which is, however, uttered by both sexes, and also in the nest building, they resemble the Wren Warblers. Again, their alarm notes, their calls to one another, their method of capturing some of their food, the female's manner of dropping from the nest when disturbed, and the attaining by the young of the full plumage from the nest, all indicate kinship with the Tit Warblers. . . The female does all the work of nest-construction, and, being a wise little creature, stops work at 11 a.m. and does not resume until nearly 4 p.m. The interval is spent in 'Blue-beard's' company, feeding and resting. . . The eggs are generally laid by 11 a.m. When sitting, the female returns to her duties at the same hour, having quitted the nest between 9 a.m. and 10 a.m. She also takes a short feeding flight again in the evening. . . My observations show that an egg is laid each day till the clutch is complete, and the female begins to brood on the day on which the last egg is laid. She does all the brooding, which extends over 10 or 12 days. When first hatched the young are naked, except for a few tufts of blackish down on the head, shoulders and tail. They become fledged rapidly, the blue feathers of the males appearing on the fifth day. If the young are constantly inspected the parents become very apprehensive, and soon remove the brood from the nest. In one case the chicks were among the rushes as early as the eighth day. Both parents feed the chicks. . . The first brood appears about the second week in September, and by the middle of November these are cast off and a second nest is built. Still there are exceptions. In two cases last season the young followed their parents though the female was brooding on the second clutch of eggs."

THE BIRDS OF AUSTRALIA.

Mr Tom Carter has given me the following account: "The Westralian Emu-Wren appears to be restricted to the south-west, occurring commonly in the coastal scrubs and swamps, where its presence can be easily overlooked unless one is aware of the bird's seclusive habits. The number of residents in districts where Emu-Wrens are common, who have ever noticed their presence, is really remarkably few. These birds, however, are to be met with on open, sand-plain country. In December, 1902, a farmer friend of mine residing at the Vasse River, who takes an interest in bird life, tried to describe to me some curious small birds that he had never previously seen, and which he had noticed on a sand-plain in that neighbourhood. We rode out next day to try and identify them, and while riding about the place where he had seen them, a small bird darted from some low scrub, and flew rapidly and strongly for about two hundred yards. I dismounted, and advancing with my gun, flushed it again. A snapshot on its second flight proved it to be an Emu-Wren. This species was also shot on similar sand-plain, east of Broome Hill, on July 25, 1908, and I have got specimens on similar open country close to the coast near Albany, but swampy scrub-land is their favourite habitat. This bird appears to be much less numerous now about Albany than it was ten years ago. Probably wild domestic cats are responsible for this, also bush fires. A male bird I once procured at Albany measured $7\frac{1}{8}$ inches in length.

Mr. Tom Carter's recent notes on the different forms are here quoted: "The Dirk Hartog Emu-Wren is another most interesting discovery made on that island last year, because, so far as is known at present, this island form is not a connecting link between *Stipiturus m. westernensis* of the extreme south-west corner of Western Australia (about 600 miles to the south) and *Stipiturus m. ruficeps*, which occurs 250 miles north on the North-west Cape Peninsula, and so far has not been recorded south of there. The subspecies under consideration is quite distinct from either of the above, and was only observed on Dirk Hartog. When riding towards the north end of the island with Mr. Lloyd on 27th April, 1916, I was so much struck with the great probability of the prevailing scrub containing Emu-Wrens, that I asked Mr. Lloyd if he had ever seen any there, and described the general appearance of the birds. Mr. Lloyd replied that he thought he had noticed such birds, and as he was riding ahead of me, he promised to keep a look out for any. On the afternoon of the second day (April 28th), he stopped and shouted that he thought he saw a pair of the birds creeping about in the lower part of a small wattle bush. One of them was soon secured, a male, differing from any Emu-Wren previously handled by me; and further on our way the same afternoon three more specimens were obtained. No more of the birds were

EMU-WREN.

observed while at my camp at the north-west corner of the island, but a few were seen on the west coast, and when riding across the island on May 5th, back to the east coast, more Emu-Wrens were seen than at any subsequent date. On one part of the track the dense growth of low thick scrub matted with creepers and also patches of dwarf Ti-tree (*Melaleneia*) seemed full of them, and as these birds are extremely unobtrusive, many more would be passed unseen. They creep about in a very mouselike way, and do not fly much, but when they do, the flight is straight, with tail extended horizontally, and in bright sunlight the tail-feathers sometimes glisten in the sun, so that these tiny birds might be mistaken for large dragon-flies. At times they simply dart (run) across any patch of open ground between bushes at an extraordinary speed for their size, and then resemble mice more than birds. By keeping quiet, one may readily watch them, and they can be 'chirped' close up, but do not come out much from the actual shelter of the bushes. The male birds always appeared to be bolder, or more inquisitive, than the females. In strong winds they naturally keep under cover, and are not seen much. They appeared to be very local in their distribution on the island, none being observed at some camps, although the scrub appeared to be suitable for them. They do not seem to have any song, and were not heard to utter any notes unless it was a faint mouse-like squeak, that to the writer (who is rather deaf), appeared to emanate from them. No breeding notes were obtained, and no young birds were seen. None of the specimens examined either on the first or second visits (April to May and October to November) showed any signs of breeding, but some were moulting in October."

"*S. m. westernensis*. Westralian Emu-Wrens were common about Augusta and Cape Leeuwin, 1916-19. *S. m. media*. The type specimen of this Emu-Wren was obtained by me a few miles east of Gnowangerup (thirty miles south-east of Broome Hill) on 12th February, 1919. Several small parties of these birds, from three to six in number, were seen in scrubby sand-plain country, which is practically always dry, and devoid of any surface water. In general plumage this subspecies is lighter in colour than *Stipiturus m. westernensis*, and distinctly smaller in size. It comes midway between that bird and *S. m. hartogi*, and is a good subspecies. The habits of all three are similar. On 20th July, 1908, I shot a similar bird on a sand plain a few miles east of Broome Hill, but never saw any other there. Although the Stirling Ranges are only about twenty miles distant to the south of where the type was secured, Whitlock does not record having seen any Emu-Wrens there in his 1911 expedition (see *Emu*, Vol. XI.), and Milligan in his account of his trip there in 1902 (*Emu* Vol. III.) only records having seen one bird, that was not secured."

THE BIRDS OF AUSTRALIA.

The technical history of this species has developed within the last few years, and mainly due to the local enterprise of Australian ornithologists. Probably this is to some extent due to the greater diligence of field workers in recent years, as this bird is a skulker, and all agree very easily overlooked.

As noted above, the species was described from Sydney, but was recorded from Tasmania eighty years ago in the first list of Tasmanian birds published. No variation seems to have been noticed (if specimens were compared), until a form was found living in the Victorian Mallee, when it was distinguished by Campbell as a distinct species. Previously, a different looking bird had been also described as a distinct species from a very far distant locality, the North-west Cape, and recently it was suggested that it was still worthy of specific rank. I might here observe that the status of some of these Central Westralian birds will not be settled until many years have passed and long series have been studied, including plumage stages from nesting to adult, and also seasonal changes considered.

When I drew up my "Reference List" in 1912, I was following the continental method as then current in English first-class usage, and accepted geographical representatives as of subspecific value, whether the difference was slight and confined to obvious colour depths, or whether the difference was marked and was due to more than one factor. Dr. Lowe, of the British Museum, has recently brought to the notice of British ornithologists that there is an essential difference between a geographical subspecies and a geographical representative of more than subspecific value, a point I was the first to indicate through my studies in Australian birds, and which has been noted more than once in the course of this work. Consequently I am in accord with Lowe's remarks, on account of my greater experience of such problems, as they have commonly occurred to me. However, these problems cannot be dismissed without much more study and material than is at present available.

Campbell's description of the Mallee Emu-Wren reads: "The Mallee bird differs from the ordinary Emu-Wren of the more southern parts of Victoria and Tasmania by its general lighter colouring, by its smaller dimensions, except the bill, which is larger, and of the six loose feathers of the tail being less filamented. It appears to be an intermediate form between the common Emu-Wren and the Rufous Emu-Wren of North-west Australia."

Later, when Carter recorded his meeting with the Emu-Wren in South-west Australia, A. J. Campbell added in a footnote: "The Western Australian form of the Emu-Wren differs from the eastern bird by the general upper-surface being lighter coloured (greyish instead of brownish), and by

EMU-WREN.

the width of each of the curious tail-feathers being only about half the width of those of eastern examples." Four years later he named it *Stipiturus westernensis*, and then gave a figure of the tail-feathers for comparison, the western form being typified by an Ellensbrook skin, and the eastern by a Springvale, Victoria, specimen.

Simultaneously, I examined the specimens in my collection and also all the rest available, and acknowledged in my "Reference List" five sub-species thus :

Stipiturus malachurus malachurus (Shaw).

New South Wales, Victoria, South Australia.

Stipiturus malachurus mallee Campbell.

Victoria (Mallee).

Stipiturus malachurus littleri Mathews.

"Altogether darker than *S. m. malachurus*, both above and below, and markedly so on the head. Tasmania."

Tasmania.

Stipiturus malachurus rothschildi Mathews.

"Differs from *S. m. malachurus* in being greyer above; the head only slightly reddened, with the black centres to the feathers always present; the patch between the eye and the ear-coverts is pronouncedly white shafted; the blue on the throat darker, and with less white on the abdomen. West Australia."

South-west Australia.

Stipiturus malachurus ruficeps Campbell.

North-west Australia.

Fortunately, the name *westernensis* applies to the same form as my *rothschildi*, as both names appeared at the same time, Campbell's on the 1st of the month in Australia, and mine on the 31st in England. As soon as I received Campbell's paper I made the correction, but added :

Stipiturus malachurus tregellasi.

"Differs from *S. m. malachurus* in having the blue of the throat distinctly paler; abdomen whiter, and the red on the forehead does not extend so far back. Frankston, Victoria."

Victoria.

This is the bird that Campbell has used as typical of the eastern form, but it is obviously different from the Sydney bird.

These half-dozen forms I arranged in my 1913 "List," and for six years no addition was made, and then in succession four new forms were added, and at present all will be allowed, but before long more will be named.

THE BIRDS OF AUSTRALIA.

The first was the Dirk Hartog Island form which was called

Stipiturus malachurus hartogi Carter

who considered at first the differences he noted to be specific, but later admitted the series tended to allow subspecific variation only.

I later named, also from Carter's collecting,

Stipiturus malachurus media

from south-east of Broome Hill, a distinctly paler and smaller bird than the previously named *S. westernensis*, but owing to the extreme localisation of this group, it is probable that later my *S. rothschildi* will be allowed as a separate subspecies also.

When Parsons described the Kangaroo Island form as

Stipiturus malachurus halmaturina

he stated: "Whereas the mainland forms have warm colours on the upper surface of chestnut-brown crowns, brown and black backs, the Kangaroo Island forms have a 'washed-out' appearance, with light brown crowns, light grey and very dark grey backs."

Then Ashby collected specimens at Mount Compass, South Australia, and wrote a comparative account, which may be here quoted, as of quite independent origin. "The specimen I collected in Tasmania easily was first for the depth and brilliancy of rufous coloration of the upper plumage, and, incidentally, smaller in size than any of the others. Next came those I collected near Cranbourne in Victoria; the whole coloration is decidedly rufous, the male slightly more so than the female, and the forehead of male almost entirely rufous, the blackish mid-streak being almost absent. Then come the Mount Compass birds of the South Australian series, showing a considerably wider distinction between them and the Victorian than there is between the Victorian and Tasmanian races. In the males from Mount Compass, the nape and upper neck is distinctly edged with grey, the rufous coloration being practically confined to the forehead, and the black mid-streak being much more in evidence than in the Victorian and Tasmanian specimens; but in the female this distinction is still more marked—the whole of the upper portion of the head and neck is grey streaked with black, and in this respect being very similar to the Kangaroo Island bird; but whereas in the Mount Compass birds, the feathers of the wings and back are edged with pale rufous, in the Kangaroo Island skins the coloration is practically absent. A consideration of the under-surfaces shows that the Tasmanian and Victorian birds are considerably deeper in rufous coloration than is the case with either of the South Australian forms. I think it best to recognise the Mount Compass birds as an intermediate variety between the Victorian and Kangaroo Island species, with closer affinity with the latter

EMU-WREN.

than the former; I suggest the name *intermedius*, of which the Mount Compass bird will be the type."

At present then we have ten forms with prospects of more, thus:

Stipiturus malachurus malachurus (Shaw).

New South Wales.

This was described from Sydney, and the range of this typical form is quite unknown. I have seen specimens supposed to come from the Richmond River district which have darker red heads, browner backs, longer, narrower tails and paler flanks, and this may be named:

Stipiturus malachurus richmondi subsp. nov.

Then we must note

Stipiturus malachurus subsp.

from the Bellenden Ker Plains, the furthestmost northern record, but not yet substantiated.

Then

Stipiturus malachurus tregellasi Mathews.

Victoria.

Stipiturus malachurus mallee Campbell.

Victorian Mallee.

The range of this form is also quite unknown.

Stipiturus malachurus littleri Mathews.

Tasmania.

Stipiturus malachurus intermedius Ashby.

South Australia.

Stipiturus malachurus halmaturinus Parsons.

Kangaroo Island, South Australia.

Stipiturus malachurus westernensis Campbell.

South-west Australia.

The range of this form is yet undefined, and it may be that later my *Stipiturus rothschildi* may prove a valid form.

Stipiturus malachurus medius Mathews.

South-west Australia.

Range yet undefined; type from Gnowangerup, thirty miles south-east of Broome Hill and twenty miles north of Stirling Ranges.

Stipiturus malachurus hartogi Carter.

Dirk Hartog Island, West Australia.

STIPITURUS RUFICEPS.

RUFOUS-CROWNED EMU-WREN.

(PLATE 465, top left-hand figure.)*

STIPITURUS RUFICEPS Campbell, Victorian Naturalist, Vol. XV., p. 116, Jan. 12th, 1899: North-west Cape, Mid-west Australia.

Stipiturus ruficeps Campbell, Victorian Naturalist, Vol. XV., p. 116, Jan. 12th, 1899: North-west Cape, Mid-west Australia; *id.*, Ibis, 1899, p. 399, pl. vii.; Hall, Key Birds Austr., p. 23, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 217, 1901; Carter, Emu, Vol. I., p. 56, 1902 (N.W. Cape); *id.*, *ib.*, Vol. III., p. 36, 1903, *id.*; Mathews, Handl. Birds Austral., p. 79, 1908; Whitlock, Emu, Vol. IX., p. 201, 1910; H. L. White, *ib.*, Vol. XVII., p. 39, 1917 (M.W.A.).

Stipiturus malachurus ruficeps Mathews, Nov. Zool., Vol. XVIII., p. 363, 1912; *id.*, List Birds Austr., p. 230, 1913.

DISTRIBUTION.—North-west Cape, Mid-west Australia.

Adult male. Crown of head, nape, and hinder-face cinnamon-rufous; mantle and back dark brown, or blackish with drab-grey margins to the feathers; upper wing-coverts cinnamon with dark shaft-lines to some of the feathers; flight-quills hair-brown margined with rufous, or cinnamon on the outer webs and also on some of the inner ones; tail like other forms; rectal bristles white at the base and black at the tips, somewhat numerous, but only feebly developed; lores and sides of face, including the eye, blue with bright shaft-lines to the feathers; chin, throat, and fore-neck lavender-blue with black bases to some of the feathers on the last; breast, abdomen, sides of body, axillaries, under wing-coverts, and inner margins of quills below cinnamon-buff, remainder of quill-lining hair-brown. Culmen 8 mm.; wing 40, tarsus 16. Figured. Collected at Yardie Creek, North-west Cape, Mid-west Australia, on the 12th of April, 1899, and is *Stipiturus ruficeps* Campbell.

Adult female. Differs in lacking the blue on the throat and ear-coverts, these parts being buff.

Adult female. Crown of head and nape rufous, which encroaches more or less on to the sides of the neck; sides of face blackish streaked with white; eye-ring white; a small dark spot in front of the eye; rectal bristles black; back blackish, the feathers broadly margined with drab-grey and have dusky-black bases; rump and upper tail-coverts hazel; lesser upper wing-coverts cinnamon, the median and greater series similar, but have dark elongated centres to the feathers like the bastard-wing; flight-quills dark hair-brown with ferruginous margins; tail-feathers also dark hair-brown; chin and throat pale cinnamon-buff with blackish bases to the feathers,

* The Plate is lettered *Stipiturus malachurus*.

RUFIOUS-CROWNED EMU-WREN.

becoming darker and inclining to cinnamon rufous on the breast, abdomen and sides of body ; somewhat paler on the under tail-coverts ; under wing-coverts pale cinnamon ; under-surface of flight-quills hair-brown ; lower aspect of tail similar to its upper surface. Eyes reddish-brown ; bill horn-colour ; feet and legs fleshy. Total length 115 mm. ; culmen 8, wing 37, tail broken, tarsus 17. Collected at Point Cloates, Mid-west Australia in December 31st, 1900.

Nestling. General colour of the upper-surface dark rust-brown, including the top of the head, sides of the face, entire back, and tail ; the wings paler than the back and inclining to chestnut with dark shaft-lines to the feathers, which widen out towards the tips ; rictal-bristles black and strongly developed ; chin, throat, breast, abdomen, sides of body, under tail-coverts, and under wing-coverts pale buff, somewhat darker on the lower flanks and thighs ; under-surface of flight-quills dark brown with buff margins ; lower aspect of tail similar to its upper-surface but paler. Bill dark horn : gape yellowish, feet and legs pale brown, eyes deep brown. Collected at East Murchison, West Australia, on the 12th of November, 1909.

Nest. " An oval structure, with entrance at the side, like the nest of *Malurus*. Composed of fine bark, grass, and spiders' webs, lined with feathers and flowers of shrubs." (H. L. White.)

Eggs. Clutch two. White, possessing a very slight trace of pinkish-buff, well marked all over, particularly at the larger end, with spots and specks of reddish-brown, intermingled with a few of light amber.

Breeding-season. October.

MR. TOM CARTER, the discoverer of this bird, writes: " The Rufous-crowned Wren was first met with by me on April 14, 1898, about 38 miles north of Point Cloates, and was described from these specimens by Mr. A. J. Campbell. There is, however, no doubt, that birds of this species were obtained by Mr. G. A. Kearnland in 1896 (1897 ?) at Separation Well (600 miles east of Point Cloates), when with the Calvert Exploring Expedition, but the skins, unfortunately, had to be abandoned in the 'desert.' These wrens were observed on various parts of the North-west Cape Peninsula, but were nowhere abundant. They seemed to be very partial to spinifex country, especially where the 'buck' variety grew. It was always a wonderful sight to me to see a party of these birds fly headlong into a large bunch of spinifex, without any of them being impaled on the innumerable needle points. Sometimes, after being previously disturbed, a bird would remain in the midst of a bunch, and by removing the growth piecemeal (a most unpleasant task) one could catch it alive. On one occasion, some natives and myself caught one, after a sharp chase, owing to its becoming soaked with wet. The birds were also noted on low scrub on flat country, away from spinifex, on several occasions. No nest was ever found, but a brood of recently fledged young, accompanied by parents, was seen on Sept. 6, 1900. This species goes about in small family parties, uttering a high-pitched squeaking note. They were never seen to fly more than a few

THE BIRDS OF AUSTRALIA.

yards at a time, but move along through large bunches of spinifex in a surprisingly rapid way. Not a single bird was seen on my trip to Yardie Creek in August, 1913."

Kearland's account of the (at present) missing form may be here inserted: "When approaching Separation Well we were surprised to find a species of small bird hiding in the spinifex. Numbers were seen, but, owing to their agility in concealing themselves and their disinclination to fly, it was difficult work to secure them. The first one obtained was caught by Messrs. L. A. Wells and G. L. Jones, by simply throwing a waterproof sheet over the tussock in which it secreted itself, and then removing the grass by degrees until the bird was caught. It proved to be an immature female. At the Well I succeeded in obtaining three more (two males and one female). The males were exceedingly brilliant in colour, the throat being of a very bright lavender-blue. These were all shot in a low acacia bush or a sandhill. Three of their nests were found in the spinifex, but the young ones had all taken flight. These nests closely resembled those of the *Maluri*, but had rather large side openings. It was extremely unfortunate that these skins were lost, as, although entered on my notes as Emu-Wrens, I am strongly of opinion that it is a separate species, as the tail-feathers were very close in texture, and the throat of the male much more highly coloured than in any specimen of *Stipiturus melachurus* I had previously seen."

GENUS—DASYORNIS.

DASYORNIS Vigors and Horsfield, Trans. Linn.

Soc. (Lond.), Vol. XV., p. 231, Feb. 17,

1827. Type (by monotypy) *Dasyornis australis*=
Turdus brachypterus Latham.

Sphenura Lichtenstein, Verz. doubl. Mus.

Berol., p. 40 (pref. Sept.), 1823. Type

(by subsequent designation) Gray,

1840, p. 20 *Turdus brachypterus* Latham.

Also spelt—

Sphaenura Bonaparte, Consp. Gen. Av., Vol. I., p. 219, 1850.

Not—

Sphenura Lichtenstein, Verz. von Vögel, Mus.

Berol., May, 1822, pp. 7/8. Type (by

monotypy) *S. coraya*=

Turdus coraya Gmelin.

SMALL birds with medium bills, short rounded wings, long wedge tail and strong legs and feet.

The bill is short, not much more than half the length of the head, which is flattened, laterally compressed, culmen keeled, not much arched, tip little decurved; little basal expansion, and depth at base about equal to width; the nasal groove short, the linear nostrils overhung by a swollen operculum, frontal feathers encroaching on the groove but not hiding the nostrils, bristly feathers not projecting; rectal bristles prominent; under mandible medium, interramel space nearly half the length of the bill and scantily feathered.

The wing is very rounded, all feathers somewhat soft, the fifth, sixth, seventh and eighth primaries longest and equal, the fourth and ninth a little shorter and subequal, the third shorter than the secondaries, second notably shorter, and the first about half the length of the fourth.

The tail is long and wedge-shaped, twelve rather broad, little acuminate feathers.

The legs are strong, with anteriorly six strong scutes, posteriorly bilaminate, the feet also strong, the middle toe and claw longer than the hind-toe and claw, but the hind-toe stouter and the claw longer, the outer toe and claw shorter than the inner, claw notably so, and less than the middle toe alone; all claws flattened.

THE BIRDS OF AUSTRALIA.

Sphenura is generally quoted from *Lichtenstein 1823 Catalogue*, published in 1823, where on p. 40 is written: "Sphenura. Novum genus, intermedium inter Certhias, Sittas, Sylvias, Turdos." A good diagnosis is given and then

"Typus: *Turdus brachypterus* Lath. *T. Coraya* Lin. Gm. *Certhia cinnamomea* Lin. Gm. *Fringilla macrura* Lin. Gm."

The species listed in his *Verzeichniss der Doubletten des zoologischen Museums*, i.e., *Catalogue of Duplicates of the Museum, Berlin*, read: *S. acaciæ* N., *S. erythroptera* (ex Lin. Gm.), *S. albicollis* N., *S. sulphurascens* N., *S. poliocephala* N., *S. superciliaris* N., *S. frontalis* N., *S. mentalis* N., *S. cinnamomea* (ex Lin. Gm.), *S. ruficeps* N., *S. coraya* (ex Lin. Gm.), *S. striolata* N., *S. fringillaris* (*Fringilla macroura* Lin. Gm.), and *S. Tibicen* N. Not. Numerus specierum hujus generis in Museo nostro hospitantium 24.

For many years *Sphenura* has been restricted to the Australian bird, though it is obvious that the majority of the species were not congeneric.

A complication now arises in the fact that *Sphenura* had been recorded by Lichtenstein in his earlier Catalogues and first appeared in his *Verzeichniss von Vögel* published in May, 1822, where on pp. 7 and 8 are listed *Sphenura poliocephala*, *sulphurascens*, *superciliaris*, *frontalis* and *coraya*. As will be seen above, these are all *nomina nuda*, save *coraya*, the others being described in the 1823 Catalogue. If it be concluded that *Sphenura* is recognisable as from this list, its type must be *coraya* and the name *Dasyornis* must be used for the Australian *brachyptera*.

It may be noted that Lesson in his *Complement de Buffon* used *Dasyornis* and restricted *Sphenura* to *S. tibicen*, noting "En créant son genre, y a entassé un grand nombre d'oiseaux disparates," and in 1823 Lichtenstein himself noted of *coraya* "Obs. Species ambigua inter *Sphenuras* et *Troglodytas*."

Key to the Series.

Larger upper-surface uniform	<i>D. brachypterus</i> .
Smaller upper-surface with glossy grey tips to the feathers	<i>D. longirostris</i> .



H. Grönvold. del

SPHENURA LONGIROSTRIS.
(WESTERN BRISTLE-BIRD).

Witherby & Co

SPHENURA BRACHYPTERA.
(BRISTLE-BIRD).

MACCOYORNIS BROADBENTI.
(RUFIOUS BRISTLE-BIRD).

DASYORNIS BRACHYPTERUS.

BRISTLE BIRD.

(PLATE 466, middle figure.)*

Turdus brachypterus Latham, Index Ornith. Suppl., p. xliii. (after May 30th), 1801: New South Wales, based on Watling drawing No. 154.

Turdus brachypterus Latham, Index Ornith. Suppl., p. xliii., 1801.

Shortwinged Thr(ush) Latham, Gen. Synops. Suppl. II., p. 187, 1801.

Sphenura brachyptera Lichtenstein, Verz. Doubl. Zool. Mus. Berol., p. 40, 1823; Gould, Handb. Birds Austr., Vol. I., p. 342, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 184, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 104, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 23, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 218, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 244, 1904; Mathews, Handl. Birds Austral., p. 79, 1908; Ross, Emu, Vol. XI., p. 119, 1911 (Vic.); Mathews, Nov. Zool., Vol. VIII., p. 363, 1912; Campbell, Emu, Vol. XIII., p. 69, pl. III., f. 6 (egg), 1913; Mathews, List Birds Austr., p. 230, 1913; S. A. White, Emu, Vol. XIV., p. 142, 1915 (Vic.); Le Souëf and Macpherson, Emu, Vol. XX., p. 88, 1920, (N.S.W.).

Malurus pectoralis Stephens, in Shaw's Gen. Zool., Vol. XIII., pt. II., p. 224, Feb. 18th, 1826: new name for *T. brachypterus* Latham.

Dasyornis australis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 232, Feb. 17th, 1827: New South Wales; Gould, Birds Austr., pt. v. (Vol. III., pl. 32), Dec. 1st, 1841.

Sphenura brachyptera brachyptera Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916.

Sphenura brachyptera victoriae Mathews, *ib.*: Victoria (Gippsland).

DISTRIBUTION. New South Wales (Coastal from Richmond River to near Victoria), Victoria (Goulburn River and Gippsland).

Adult male. General colour of the upper-surface rust-brown, including the head, back, wings, and tail, inclining to rufous-brown on the outer aspect of the wings; sides of face similar to the crown but paler; a slightly indicated pale superciliary streak; rictal bristles sparsely developed; the feathers at the base of the forehead stiffened and bristly; chin, greyish-white with hair-like tips to the feathers; throat also greyish-white; sides of neck, and sides of breast greyish bronze-brown; middle of breast and middle of abdomen greyish-white with blackish bases to the feathers;

* This Plate is lettered *Sphenura brachyptera*.

THE BIRDS OF AUSTRALIA.

lower flanks and under tail-coverts rust-brown like the under wing-coverts ; under-surface of flight-quills hair-brown, tinged with rufous on the margins ; lower aspect of tail similar to its upper-surface. Total length 220 mm. ; culmen 12, wing 75, tail 95, tarsus 28. Figured. Collected in New South Wales.

Adult female. Similar to the adult male.

Immature. Very similar to the adult.

Nest. "Domed-shaped structure, rather rounded, with hole on the side, very loosely constructed, composed of dry bark, leaves and grasses, of decayed vegetation, and placed near the ground in a thick mass of grass, ferns or low bush, usually near a creek. The nest is a very frail structure, and will scarcely stand removal. It is usually warmly lined. Dimensions, about 6 inches across by $4\frac{1}{2}$ to $5\frac{1}{2}$ inches in height." (H. L. White.)

Eggs. "Clutch two. Dull white or whitish-brown, minutely but distinctly flecked and dotted with slaty-brown, wood-brown and purplish-brown ; the markings becoming larger and darker on the thicker end, where, intermingling with underlying spots of slaty-grey, they sometimes form a zone 26 mm. by 19." (North.)

Breeding-season. September to December.

WHEN Latham described this species, he added : "Inhabits *New South Wales*, and is chiefly seen on the ground, or at most, taking very short flights, being unable to accomplish long ones, from the shortness of the wings." Two species later he acknowledged : "For the description of several of the above, I am indebted to my friend Mr. Lambert," and upon reference to the "Watling" drawings we find a note : "This is a ground bird with very small wings and very short flight."

Vigors and Horsfield, when they examined a specimen of the bird itself, did not recognise it from Latham's description, so proposed a new genus and species for it, giving as notes : "This bird Mr. Caley procured in a scrubby place on the north side of Parramatta. He was able to ascertain nothing of its habits. He calls it in his notes '*Bristle Bird*.'"

Gould's notes read : "This bird inhabits reed-beds and thickets, particularly such as are overgrown with creepers and rank vegetation ; I believe it to be found throughout New South Wales in all places suitable to its habits, although, from the recluse nature of its disposition, it is a species familiar to few, even of those who have been long resident in the colony. Its powers of flight are very limited, but it threads the thickets and runs over the ground with the greatest facility. It resembles the true *Maluri* in carrying the tail erect, and in many other of its actions. My own impression is, that it is a stationary species, since its powers of flight are inadequate to enable it to pass over much extent of country, and the thick bushes near the coast afford it ample shelter in winter. The food consists of insects of various orders."

BRISTLE BIRD.

At Mallacoota, Victoria, S. A. White recorded: "Rare, frequenting the low, stunted tea-tree growing on marshy country near the coast."

Le Souëf and Macpherson have very recently written regarding the Birds of Sydney: "It is very pleasing to find that in the grounds of the Coast Hospital there are also some Bristle Birds (*Sphenura brachyptera*). They live in a tangled mass of scrub and rank vegetation growing along a small creek, and over some swampy land. The male bird has been observed by Mr. Harry Burrell. If one enters his domain he will rise to the top of the bushes for a moment to view the intruder, and drop to cover again; the female is apparently not to be seen."

This bird seems very little known, as there are no notes concerning it, although the Victorian *Maccoyornis* is now well established. Campbell records eggs taken by Jackson in the Clarence River district, and includes South Queensland in its range, but I have never seen birds from so far north.

I recently distinguished the Victorian bird on account of its darker coloration, and were series collected from the Clarence River they would probably show a very distinct form. At present, there are two forms:

Sphenura brachyptera brachyptera (Latham).

New South Wales (Sydney District).

and

Sphenura brachyptera victoriæ Mathews.

Victoria.

As shown above the genus name *Sphenura* must be rejected; and the names become:

Dasyornis brachypterus brachypterus (Latham)

and

Dasyornis brachypterus victoriæ (Mathews).

DASYORNIS LONGIROSTRIS.

LONG-BILLED BRISTLE BIRD.

(PLATE 466, top figure.)*

DASYORNIS LONGIROSTRIS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, July 1841: "Swan River, West Australia,"

Dasyornis longirostris Gould, Proc. Zool. Soc. (Lond.), 1840, p. 170, 1841; *id.*, Birds Austr., pt. v. (Vol. III., pl. 33), Dec. 1st, 1841.

Sphenura longirostris Gray, Gen. Birds, Vol. I., p. 167, 1848; Gould, Handb. Birds Austr., Vol. I., p. 343, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 105, 1883; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 23, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 219, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 245, 1904; Mathews, Handl. Birds Austral., p. 79, 1908; *id.*, Nov. Zool., Vol. XVIII., p. 364, 1912; Witmer Stone, Austral. Av. Rec., Vol. I., p. 166, 1913; Mathews, List Birds Austr., p. 230, 1913; S. A. White, Emu, Vol. XX., p. 127, 1921.

Sphenura brachyptera longirostris Carter, Ibis, 1921, p. 63.

DISTRIBUTION. South-west Australia. Extreme corner from King George's Sound to Swan River.

Adult. Crown of head bronze-brown with glossy grey tips to the feathers, becoming darker and inclining to black on the mantle and sides of neck; lower back, rump, and upper tail-coverts dark chestnut-brown; tail similar but paler; outer aspect of wing also chestnut-brown; inner webs of flight-quills dark brown; rictal bristles black, numerous and directed laterally; sides of face similar to the top of the head but paler and having whitish shafts to the feathers; eye-ring greyish-white; chin and throat greyish-white; breast grey tinged with bronze; middle of abdomen greyish-white; sides of body, thighs, under tail-coverts, and under wing-coverts bronze-brown, somewhat darker on the lower flanks; under-surface of flight-quills dark brown; lower aspect of tail similar to its upper-surface, with pale shafts to the feathers. Total length 170 mm.; culmen 12, wing 65, tail 77, tarsus 24. Figured. Collected at King George's Sound in Western Australia on the 17th of August, 1883, and is *Sphenura longirostris mastersi*. (Top fig.)

The sexes are alike.

Nest. "Oval with side entrance, composed entirely of dried, hollow grass stalks with a small portion of grass of a finer description placed inside at the bottom of the nest. 6 inches in length by 5 wide and four high." (North.)

* This Plate is lettered *Sphenura longirostris*.

LONG-BILLED BRISTLE BIRD.

Eggs. "Clutch two. Dull white, minutely freckled and spotted with wood-brown and purplish-brown, especially at the larger end where a zone is formed. 23 mm. by 18. (West Australia.)" (*ib.*)

Breeding-season. October to January.

ANOTHER of many discoveries, made on Gould's account, by the fine ornithologist Gilbert, as recorded by Gould: "The present species assimilates very closely in the character and colouring of its plumage to its eastern analogue, the *Sphenura brachyptera*; but differs from that bird in being of a smaller size and in having a longer bill. It is a native of Western Australia, and is very generally distributed over the colony of Swan River, where it inhabits reed-beds and long grasses, and is occasionally seen in scrubby places." "It is so remarkably shy," says Gilbert, "that it is extremely difficult to get even a glimpse of it; it appeared to feed on the ground, where its actions are extremely quick, running over the surface with its tail erect. The only chance of procuring specimens is when it ascends to a small branch on the top of a scrub to sing. Its notes are loud, clear and extremely varied. It flies very low; in fact, the bird scarcely ever rises more than a few yards above the scrub or long grass it inhabits; it is consequently very rarely seen on a tree. Its food consists of seeds and insects."

Mr. Tom Carter has recently written: "No signs of Long-billed Bristle Birds were seen or heard in any of the coastal scrubs that were visited in the south-west area, although I spent several days at the place where the last known birds were seen some years ago; but the localities where these birds may still be living extend along such a great stretch of the coast, and are so densely clothed in scrub, that it is very easy to miss seeing such a very shy and seclusive species."

Captain S. A. White has recorded: The writer made a determined effort to locate this bird, but, other than noting a call which he feels sure was that of this bird, and the tracks on the sand in the low scrub south of Cape Naturaliste (the tracks were identical with those made by the South Australian form), nothing more was recorded; but there is little doubt the bird is still there."

I cannot trace any recent record, but Masters apparently found it, and its nest and eggs, at King George's Sound, and Witmer Stone has recorded that the specimens (supposedly typical) in the Museum at Philadelphia are labelled "King George's Sound," and hence this was given as the type locality in my 1913 "List." At present I see no reason for differing from the original statement that it came from the Swan River District.

THE BIRDS OF AUSTRALIA.

The bird figured and described can be called

Sphenura longirostris mastersi subsp. nov.

As noted previously, the genus name *Sphenura* must be rejected; the names to be used will be

Dasyornis longirostris longirostris Gould.

and

Dasyornis longirostris mastersi Mathews.

GENUS—MACCOYORNIS.

MACCOYORNIS Mathews, Austral Av. Rec., Vol. I,
pt. 5, p. 113, Dec. 24th, 1912. Type (by
original designation) *Sphenura broadbenti* McCoy.

I WROTE: "Differs from *Sphenura* in its more powerful bill and stronger feet and legs, and in the longer wing and tail."

This is a peculiar evolution, as it is a large form of *Dasyornoid* relation, intervening between the two known species from East and West Australia, while it has a representative in Western Australia living, as far as we know, alongside a true *Dasyornis*. It is unfortunate that a long enough series of all these species cannot be secured to decide their relationships exactly, as at the present time we cannot dogmatise with any certainty, and it is probable that the Western *Maccoyornis* may be specifically distinct.

MACCOYORNIS BROADBENTI.

RUFIOUS BRISTLE BIRD.

(PLATE 466, bottom figure.)

SPHENURA BROADBENTI McCoy, Ann. Mag. Nat. Hist., Ser. III., Vol. XIX., p. 185, March 1st, 1867 : near Belfast, in scrubs 24 miles from Portland Bay, Victoria.

Sphenura broadbenti McCoy, Ann. Mag. Nat. Hist., Ser. III., Vol. XIX., p. 185, 1867 ; Gould, Birds Austr., Suppl., pl. 25, pt. iv., Dec. 1st, 1867 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 185, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 106, 1883 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 23, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 219, 1901 ; Hill, Emu, Vol. II., p. 163, 1903 (Vic.) ; Belcher, *ib.*, Vol. III., p. 61, 1903 (Vic.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 246, 1904 ; Campbell, Emu, Vol. VI., p. 134, 1907 (Vic.) ; *id.*, *ib.*, p. 137 (S.A.) ; Mathews, Handl. Birds Austral., p. 80, 1908 ; Campbell, Emu, Vol. VIII., p. 101, 1908 (Vic.) ; Ross, *ib.*, Vol. XI., p. 119, pl. x., 1911 (Vic.) ; Hall, Proc. Roy. Soc. Tasm., 1911, p. 33, pl. 4 (pterylography) ; S. A. White, Emu, Vol. XII., p. 184, 1913 (S.A.) ; Campbell, *ib.*, Vol. XIII., p. 69, pl. XIII., fig. 5 (egg), 1913 ; Purnell, *ib.*, Vol. XV., pp. 38-43, pl. iv., 1915 (Vic.).

Sphenura litoralis Milligan, Emu, Vol. I., pt. 2, p. 69, January 1st, 1902 : Ellensbrook, South-west Australia ; Carter, *ib.*, Vol. III., p. 39, 1903 ; Hall, Key Birds Austr., 2nd ed., p. 111, 1906 ; Mathews, Handl. Birds Austral., p. 80, 1908 ; Orton, Emu, Vol. XVIII., p. 103, 1918 ; Ashby, *ib.*, Vol. XX., p. 123, 1921.

Sphenura broadbenti broadbenti Mathews, Nov. Zool., Vol. XVIII., p. 364, 1912.

Sphenura broadbenti litoralis Mathews, *ib.*

Sphenura broadbenti whitei Mathews, Austral Av. Rec., Vol. I., pt. 3, p. 79, June 28th, 1912 : Coorong, South Australia ; S. A. White, Emu, Vol. XII., p. 184, 1913.

Maccoyornis broadbenti broadbenti Mathews, List Birds Austr., p. 230, 1913 ; Belcher, Birds Geelong, p. 290, 1914 ; Purnell, Emu, Vol. XIX., p. 236, 1920.

Maccoyornis broadbenti whitei Mathews, List Birds Austr., p. 231, 1913.

Maccoyornis broadbenti litoralis Mathews, *ib.* ; Morgan, South Austr. Orn., Vol. IV., p. 17, 1919 (S.A.).

DISTRIBUTION. Victoria, South Australia, and South-west Australia.

Adult male. Crown of head and nape, chestnut with dark narrow edges to the feathers, which imparts a scaled appearance ; sides of crown and ear-coverts similar but uniform ; hind-neck, upper-back and scapulars, greyish bronze-brown like the

RUFIOUS BRISTLE BIRD.

upper wing-coverts; flight-quills, lower back, upper tail-coverts and tail rufous-brown; inner webs of flight-quills dark brown somewhat paler on the margins; lores, fore-part of eye-ring and moustachial streak greyish-white, the feathers in front of the eye and base of forehead stiffened and bristly; rictal bristles sparsely developed; chin greyish-white with black hair-like tips to the feathers; throat, fore-neck, and upper-breast greyish-white with dark centres to the feathers, which gives a scalloped appearance; middle of lower-breast and abdomen uniform greyish-white; sides of body bronze-brown; thighs and under tail-coverts rust-brown like the axillaries and under wing-coverts; under-surface of flight-quills hair-brown with a rufous tinge on the margins; lower aspect of tail similar to its upper-surface. Eyes brown, feet and bill dark brown. Total length 270 mm.; culmen 19, wing 94, tail 122, tarsus 37. Figured. Collected at Lorne, Victoria, on the 28th October, 1909. (bottom figure.)

Adult female. Similar to the adult male.

Immature. Resemble the adult in general appearance.

Nest. Oval shaped, with side entrance. Composed of rootlets, dried grass, etc., loosely put together and lined with finer rootlets. 7 inches deep by 4 inches wide.

Eggs. "Clutch two, and vary considerably in size, shape, and general disposition of the markings. A typical pair are long ovals, ground colour of a dirty or dull pinkish-white, well marked all over, closely set together, with specks and spots of umber, rusty-brown, and purplish-grey, becoming more confluent at the larger end, where a cap or zone is (often) formed. In some specimens lilac and pale slaty markings are very numerous. Surface of shell smooth and rather glossy. 27 mm. by 22." (H. L. White.)

Breeding-season. September to December.

ALTHOUGH Mr. Kendall Broadbent collected this fine distinct species in December, 1858, it was not described until nine years afterwards, when Professor McCoy, the director of the National Museum, Melbourne, who was then taking a little interest in birds, recognised it as a distinct form and named it after the collector.

Campbell has recorded one of the earliest field notes, which is worth re-quoting, as it is by H. E. Hill, an ornithologist who was unfortunately cut off before the promise of his early observations were fulfilled. "When we first reached the St. George Valley (near Lorne) where we fixed our camp, we noticed the great number of 'cartwheel' (the notes are described as resembling the noise produced by the grating of a cartwheel on an ungreased axle) birds that were calling on all sides. The whole time we were out they seemed very plentiful, and whereas on previous trips we had never been able to even get a sight of the bird, on this trip we not only saw a number, but were fortunate enough to secure two—a male and a female—both in fine condition. It turns out to be the Rufous Bristle Bird (*Sphenura broadbenti* McCoy). We found afterwards that fires had been through a great many of the gullies about the ranges during the previous twelve months, and that the undergrowth had been in many cases completely destroyed, so that the

THE BIRDS OF AUSTRALIA.

great abundance of the birds may have been only apparent, the birds really having been driven nearer the coast by the destruction of their usual haunts."

Hill himself a little latter, recorded: "Very common throughout the Otways, but more so at some times than others. Very shy, and not often seen, though its peculiar and distinctive note is continually in evidence. I never but once saw one on the wing, when it flew across a little gully with a heavy, lumbering flight. Very active on the ground."

Belcher published an account in the *Geelong Naturalist* for March, 1906, and in his *Birds of Geelong* in 1914, as follows: "So far as Victoria is concerned, the Rufous Bristle Bird is confined to the western side of Port Phillip Bay, and in that respect is one instance of many which prove the Bay to be a real and definite natural boundary, the effects of which is to enable us to study the effects of isolation in several species.

"The Bristle Bird's present eastern limit is a patch of scrub about two miles south-west of Torquay.

"Near the eastern extremity of its range it hardly leaves the sea coast. It lives almost entirely on the ground, over which it runs with great swiftness, its tail raised above the horizontal and slightly outspread. It is one of the hardest birds to get a sight of. The call consists of three or four pairs of notes, uttered with a rising inflection and in quick succession and concluding with a note which suggests the 'crack' of the Coachwhip Bird; double, however, where the Coachwhip's is single, the second part not being accented. Immediately, the bird is answered by its mate, who utters what sounds like an echo of the last three notes of the first bird. There is also a single note, less frequently heard. Bristle Birds call all through the months from October to March inclusive. In the breeding season the series of notes is produced about every five minutes."

A. G. Campbell has recorded observations from which I quote: "In parts matted with sword-grass, they were more often heard than seen, but in one or two more open places the birds, especially when nesting, could be attracted about one's feet by making a squeaking noise. One pair which had a large young one running about them were quite pugnacious. The male, with spread wings and tail, approached to within three feet. The food in the stomach of one bird examined, consisted of about three parts of comminuted brown chafer beetles and one part cranberry fruits. A bird was noticed out on the beach sand in search of these beetles which were very plentiful, but the cranberry bushes were only found in the higher land to the rear. The birds also eat earth grubs, for which they search after the manner of *Geocichla*, running along a few feet and then standing quite still, moving on again in a few seconds or digging out an insect with a probe or

RUFOUS BRISTLE BIRD.

two of the bill. The birds rarely fly, but sometimes mount on to a prominent stick or bush to whistle. In the mornings it was noticed they were always very late with their song. Singing Honey-Eaters (*Ptilotis sonora*) were very plentiful, and welcomed the daybreak in all directions with their delightful notes, but they were an hour ahead of the Bristle Birds. . . . A remarkable circumstance about the eggs is that one is as a rule infertile. This is probably accounted for by the great size of the egg in comparison to the bird, with the deficiency of some important element of food. No less than five old nests contained addled eggs, and two others contained a broken shell. . . . As far as we could judge, the female alone builds the nest and sits upon the eggs, while the male brings her food and also helps to feed the young. The call of the male bird is loud and penetrating, and is always answered by the mate, wherever she may be. . . . The notes of the Bristle Bird have a great likeness to those of the Pilot Bird in being loud and melodious—the call song is almost identical in the two birds, except that one is in a sharper key.”

Then Ross furnished a fairly complete account and I note the following additional information: “I saw a bird erect the feathers on its head like a crest. From the fact that I have found what appeared to be the nests for several seasons of the same pair of birds, within a few yards of each other, I conclude that a pair of birds will for years be faithful to a very limited area. . . . Another comparison made by Mr. Belcher was between the Bristle Bird and the Pilot Bird (*Pycnoptilus floccosus*), and this, I think, was most apt. Seen at a little distance, the species are much alike in plumage; both frequent dense scrubs, are nearly always on the ground, over which, when disturbed, they move at a very rapid rate, taking advantage of every bit of cover; and some of the call notes are very similar. . . . Another habit I observed with one pair of Bristle Birds, when I was near a chick, was the frequent spreading of the tail in a manner similar to that adopted by a male Pigeon when courting his mate. . . . The call I most frequently heard consisted of about nine notes, the first six being those which resemble the squeak of the cart wheel, although, in justice to the birds, I must say that I do not like the simile. The odd numbers are all in one tone, and the even numbers all in another, slightly deeper, the three last being most musical, rich in tone, of greater volume than the earlier notes, and blending together so as to sound almost like one rolling sound. When one goes near the nest or a young bird, the parents will sometimes put in an appearance, and then they utter an alarm call, consisting of one note only. It is so keen and sharp and vicious, that I cannot describe it, unless I say that it seems to cut or stab.”

Purnell has given a similar account, with a photo of the bird at the nest, and adds: “I am of opinion that the Bristle Bird uses its nest for two seasons

THE BIRDS OF AUSTRALIA.

in succession, for I have found, on pulling a nest to pieces, an egg, generally addled, among the dry lining of the nest."

Captain S. A. White has written me: "I have taken this bird in South Australia as far west as Robe; it may extend to Kingston, but believe this would be the limit of this form. It is exceedingly plentiful in the sand dunes along the coast line and its peculiar sharp call is to be heard all over the place amongst the sword-grass on a bright day. They are great ventriloquists and can throw their voice quite a distance. Dr. Morgan had quite a difficulty in procuring specimens when visiting Robe in October, 1918. I procured mine by sitting motionless in a thicket and imitating the bird's call; they would come running along the ground, pause for a moment, hop on to a low twig or bough, raise the head and tail and pour forth a clear sweet note, the mandibles often wide apart, when the tongue and yellow lining to the mouth can be plainly seen. At the slightest sound of alarm, down goes the tail and they run with such rapidity and so close to the ground, that they are lost to sight in a moment. They are late breeders and do not nest very often till late in December; the nest is a large structure of bent and twisted blades of the sword-grass neatly lined with fine grasses. Their food consists mostly of insects, but they also take a good many very small berries and seeds. *M. b. whitei*. The range of this subspecies commences west of Kingston and follows the sand dunes of Younghusband Peninsula (bounded upon one side by the open ocean and on the other by the Coorong) to the Murray Mouth. It keeps to the peninsula and I have never seen it east of the Coorong. These birds are fairly numerous amongst the sandhills, but shy and difficult to procure."

Morgan has written: "These birds are very common in the sandhill country from Glenelg River to Kingston. The bird on the Coorong collected by Capt. White is much lighter in colour, and has rightly been described as a new subspecies. Although the birds are so common they are very rarely seen. My wife and I have stood still in the scrub and had birds calling all around us, sometimes within a few feet, and yet not been able to get a sight of them. As for collecting specimens, we tried every day for a week at Beachport without securing a single bird or even a shot at one."

When Milligan described his new species he stated: "The new bird closely resembles *Sphenura broadbenti*, and at first sight I thought that it was that form, or a western variety of it, but after examination of a skin of the eastern form, I felt that I need not have the slightest hesitation in separating it from that species. The chief differences between the species are that the new one is much smaller than *Sphenura broadbenti*, and that in the former the rufous or chestnut head is brighter, and the under-surfaces

RUFOUS BRISTLE BIRD.

lighter than in the latter, and that the yellow gape and triangular loreal spot present in *Sphenura broadbenti* is absent in the latter. The bird has two distinct calls—alarm notes and song notes. The former it utters when closely pursued and pressed, and resembles the words ‘pink, pink, pink.’ The latter is a series of clear, liquid, thrush-like notes. The bird was most difficult to flush or even see, and it was only in the afternoon of the second day’s pursuit that I obtained a momentary glimpse of it as it rushed across a kwagga (species of Wallaby) track in the scrub, with tail elevated. My next sight of it was on the fourth day of pursuit. . . . Its motion on this occasion (perhaps due to its being severely pressed) was distinctly different from that observed on the former. Appearing, as it did, running at top speed across one of those beautifully rounded sandhills (which abound on the coasts), with its tail depressed below the plane of the body, and its dwarf, rounded wings used as an aid to its running, its toes just touching the ground, and its neck stretched to the utmost, the bird reminded me very much of the action of the Lyre Bird in similar circumstances. The food of the bird, as revealed by dissection, consisted wholly of land snails—those marine-like looking forms which are found in abundance on the coastal limestone hills, apparently lifeless in hot weather, but full of vitality after a shower of rain. One snail, with the shell perfect, was found in the stomach. The bird was an adult female, but there was nothing to indicate that incubation was near (it was procured on 12th October).”

Mr. Tom Carter has written me: “The Lesser Rufous Bristle Bird appears to be confined to certain parts of the extreme south-west coast, very local in its distribution and by no means common in areas where it does occur. Like other species of similar habits, it is probably rapidly diminishing in numbers, from the ravages of domesticated cats in a wild state, increased settlement and stocking of country (mostly by cattle), and the concomitant evil of bush fires, made to reduce the scrub and produce more grass and feed generally. The only locality where this species came under my notice was near Cape Mentelle. The birds were exceedingly wary and seclusive, and although their rather pleasant song was frequently heard, a bird was only sighted on two occasions, after many days spent wholly on trying to secure a specimen. The coastal scrub was so dense and stiff, and mostly growing at an acute angle from the prevailing strong winds off the ocean, that in many places it was impossible to force a way through it, although very frequently it was possible to walk on the top of it, but the latter was no help in either seeing or obtaining a bird. The better way was to crawl in, underneath the scrub, near where a bird was heard, and wait patiently in the hope of one coming near. On one occasion, while doing this, one of

THE BIRDS OF AUSTRALIA.

them hopped through the branches of the scrub within four feet of my face. As my only weapon was a 16° gun, a shot from it would, of course, have only resulted in 'wasting' a bird—a thing to be deplored by all naturalists. On another occasion, when returning homewards after a blank day, and, I must admit, carrying my gun unready, one of these birds suddenly *ran* at immense speed across an open piece of bare drift sand, and disappeared in some scrub. A snap shot was without effect. A careful measurement of the footprints found them to be from seventeen to eighteen inches apart. Many times I sat for hours, constantly hearing a bird's song within a few yards of me, in different directions, but although it was doubtless watching me, I could not get a glimpse of it. The song may be described as a rather 'rollicking' one, but short, somewhat like that of the Reed Warbler and quickly repeated. The words 'stitch-stitch-a-way' (last syllable in a lower note), may perhaps faintly represent it."

Milligan described as a new species a bird from South-west Australia, calling it *Sphenura litoralis*, and stating it was like *S. broadbenti* but was much smaller, with a brighter rufous or chestnut head, and that the yellow gape and triangular loreal spot of *S. broadbenti* was absent. I considered these differences of subspecific value only and allowed in my "Reference List" in 1912:

Sphenura broadbenti broadbenti McCoy.

Victoria, South Australia.

and

Sphenura broadbenti litoralis Milligan.

South-west Australia.

Later Captain White sent me specimens from the Coorong, South Australia, which I named

Sphenura broadbenti whitei.

"Differs from *S. b. broadbenti* in being distinctly lighter above and below," and this form is easily recognisable. Therefore in my 1913 "List" I had

Maccoyornis broadbenti broadbenti (McCoy).

Victoria.

Maccoyornis broadbenti whitei (Mathews).

South Australia.

Maccoyornis broadbenti litoralis (Milligan).

South-west Australia.

Captain S. A. White has, however, pointed out that *M. b. whitei* is restricted to the Coorong district, and that *M. b. broadbenti* also occurs in the south-eastern portion of South Australia. With this correction the above arrangement stands, but I had better note that the South-west Australian form later may be allowed full specific rank as Milligan gave it.

GENUS—DIAPHORILLAS.

DIAPHORILLAS Oberholser, Proc. Acad. Nat.

Sci. Philad. 1899, p. 212, June 2nd.

Type (by original designation) ... *Malurus textilis* Quoy & Gaimard
=Dumont.

Amytis Lesson, Traité d'Ornith., livr. 6^e,
p. 453 (about March 1), 1831. Type
(by subsequent designation). Gray,
1841, p. 27 *M. textilis*.

Not—*Amytis* Savigny, Hist. Egypte, Vol. I., pt. 3, p. 46, 1822.

Amytornis Stejneger, Stand. Nat. Hist.,
Vol. IV., p. 499, after July, 1885 ... *Nomen nudum*.
Sharpe, Handl. Birds Brit. Mus., Vol.
IV., p. 246, 1903. Type (by subsequent
designation). Mathews List Birds
Austr., p. 231, 1913 *M. textilis* Quoy & Gaimard.

Mytisa Mathews, Austral. Av. Rec., Vol. I.,
pt. 8, p. 196. March 20th, 1913.
Type (by original designation) ... *Diaphorillas striatus howei*
Mathews.

SMALL birds with short stout bills, short rounded wings, long wedge tail of ten feathers and stout legs and feet.

The bill is a little more than half the length of the head, stout; culmen arched, tip little decurved, laterally compressed, nasal groove short, the nostrils linear, but rather diagonal and operculum projecting; frontal feathers encroaching on nasal groove as far as, but not obscuring, the nostrils; rictal bristles strong and prominent, but no nasal bristles; lower mandible fairly stout, interramal space short and sparsely feathered.

The wing is rounded, the first primary about half the length of the third, the second intermediate, but only about equal to the tenth and secondaries, the third to eighth being subequal and longest.

THE BIRDS OF AUSTRALIA.

The tail is very long and wedge-shaped, composed of ten broad, but a little pointed, feathers.

The legs are stout, the tarsus with six scutes anteriorly, bilaminate posteriorly, the inner toe shorter than the outer, both with claws subequal with middle-toe alone, hind-claw long and curved, hind-toe and claw about equal to middle-toe and claw.

The genus name *Amytis* was invalid, as before Lesson selected it Savigny had made use of it. This was long known, but it was not until 1899 that Oberholser proposed as substitute *Diaphorillas*.

In 1903 Sharpe rejected *Diaphorillas* for *Amytornis*, which was claimed to have been proposed for *Amytis* years before by Stejneger. There is no doubt that Stejneger introduced the name, but he gave no indication of its use as the extract quoted will show: "*Amytornis textilis*, with two allied species, also from Australia, belong here, wren-like birds of brown plumage, with curious whitish longitudinal streaks." This is certainly not determinable with accuracy from this quotation, as a Wren has a short tail, while these birds have long tails. Consequently I use the correct name *Diaphorillas*.

The confusion in Gould's mind is apparent through his statement that the figure given by Lesson in his Atlas to his *Traité* was clearly taken from a specimen of Gould's *striatus*. As Gould's *striatus* was unknown to Lesson and the only specimen at that time known was the unique *textilis*, it is obvious that Lesson's figure could only have been from that source. It may be a poor attempt, but nevertheless it is only *textilis* and not *striatus* as Gould suggested.

When I prepared my "Reference List" I was lumping genera and therefore classed all the Grass-Wrens in the genus *Diaphorillas*, but the differences seen in the species were so striking that I wrote: "*Note*.—From the point of view of the genus splitter this is a heterogeneous genus. The two species, *D. woodwardi* (Hartert) and *D. housei* (Milligan) are altogether apart from the preceding species which agree with the type of the genus, *D. textilis* (Q. & G.), while *D. goyderi* (Gould) is also easily separable. Most authors will certainly wish to separate these last three species from the typical forms of the genus; for their use I provide the genera *Magnamytis* nov. with type *A. woodwardi* Hartert, and *Eyramytis* nov. with type *A. goyderi* (Gould). These are certainly more worthy of generic recognition than the majority of the lately introduced genera."

I later adopted the genus-splitting method as being productive of better results and this instance absolutely confirms it. In a genus-lumping scheme no care at all is necessary to place a bird, only the most casual glance is needed, and the why and the wherefore is absolutely neglected. Thus anyone can tell a Grass-Wren because of the streaked appearance and no more consideration

DIAPHORILLAS.

is necessary. If the Grass-Wrens are split into two or three genera, careful examination of each species and almost every specimen is imperative to determine their exact position. When such is undertaken it may later become useful to re-unite some that have been split, but still, good has been done by the facts elicited.

I later separated under the generic name *Mytisa* the “*striata*” group noting “Differs from *Diaphorillas* in having a larger and more slender bill.”

This may read as slender grounds, but as a matter of fact it is very probably of great phylogenetic significance, and as the definite facts are not at present determinable I am here not using *Mytisa* generically, but will point out the extraordinary facts I have found through my genus-splitting methods and later anticipate the recognition of my group. In the last twenty years, in connection with Palaearctic forms, through the fallacy of genus lumping, we have not had any observations of any importance whatever with regard to the phylogeny of bird forms. I have indicated many important items throughout this work through genus splitting and while these have been more or less ignored by genus lumpers, I am intensely gratified to find my observations amply confirmed by quite independent osteological studies. Therefore I remark with confidence that two divergent series of Grass-Wrens are represented by *Diaphorillas* and *Mytisa*, the latter developing into the magnificent *Magnamytis*, while the former has provided the bizarre *Eyramytis*. The most extraordinary feature of these groups is the persistence of a minor colour feature, which would be quite overlooked as of any significance by a genus lumper, the coloration of the bill. In *Diaphorillas* this is horn, while in the *Mytisa* series it is blackish, and in the former the bill becomes deeper without much lengthening, while in the latter it becomes longer with little increase in depth. The *Diaphorillas* group has a pale tendency, while the *Mytisa* series tends to black, the wonderful *Magnamytis housei* Milligan being wholly black, while *Eyramytis goyderi* Gould has mostly a white under-surface.

The extraordinary confusion of species in this group makes a collation of synonymic references difficult, so that many of the descriptions are doubtful and cannot be rectified without absolute examination of all the specimens recorded. As this is at present impossible, I am leaving many of the quotations under the name used by the authority, but will here give an account of the vicissitudes of the species as succinctly as possible with the hope that some Australian ornithologist will take up this group and study it thoroughly for some time.

F. E. Howe has shown how this might be done in connection with *Acanthiza* and *Climacteris*, and when more knowledge is applied to better material, still more valuable results will be obtained. From examination

THE BIRDS OF AUSTRALIA.

of skins from many localities it appears that this group shows more variation than almost any other in Australia and moreover probably many species will be separated. The present lack is material, but the numbers examined show the great distinction between the species and the well marked colour variation of the subspecies; but as a whole all the smaller species show a general resemblance and to the superficial student show great similarity.

The first species was described from West Australia. When in Australia, Gould got two distinct species in East Australia, and recognising one as the Western Australian bird described the other as a new species. Later he received a Western Australian bird, and forgetting that was from the first named locality, described it as new, still referring to the East Australian bird by the West Australian name. As if this confusion was not sufficient, Milligan refound the West Australian bird after fifty years and comparing it with Gould's poor description renamed it as new. Before we get more confused we had better tabulate the position thus:

Amytis textilis Dumont, West Australia, equals

Amytis gigantura Milligan, West Australia, equals

Amytis macrourus Gould, West Australia.

Amytis textilis Gould, East Australia, is not *A. textilis* Dumont, but my *Diaphorillas inexpectatus*.

Amytis striatus Gould, East Australia, is a very distinct species.

Then Keartland, having collected specimens in Central and West Australia, observed there was some confusion of species, in that two distinct species had been collected by him in Central Australia. He impressed North, who had the working up of the Central Australian birds, so that North, ignoring *striatus*, which is always recognisable as distinct, named one form from Central Australia as a new species *Amytis modesta* and allowed the other to be *A. textilis*=my *D. purnelli*. This did not obviate all the confusion, as Keartland, probably thinking of the Central Australian birds as "*textilis*," allowed Milligan's *gigantura* to be distinct. Later, reconsidering the matter with his own collecting in West Australia in view, he repudiated Milligan's species. As a matter of fact both views were correct, as the Central Australian birds are different from the West Australian ones.

However, nearly some thirty years before North published his *modesta*, Gould had described a very extraordinary bird from Lake Eyre as *A. goyderi*. This has never been refound, though the type locality has been searched, but owing to the extreme localisation of this species it may yet turn up.

Then Carter got a new form from South-west Australia, and this he described as *A. varia*. It was of the *textilis* group, and he separated it from Milligan's *A. gigantura*, but was afterwards induced to withdraw his species

DIAPHORILLAS.

as being Gould's missing *A. macrourus*. About this time I began to receive specimens, and these showed matters more complicated than at first appeared, so I will again tabulate the items as at that time on record :

Amytis textilis Dumont, being used for East Australian bird *ex* Gould.

Amytis gigantura Milligan, regarded as distinct, from Mid-west Australia.

Amytis macrourus Gould, in use for the South-west Australian bird, named by Carter, *A. varia*.

Amytis striatus Gould, both East and West Australia.

Amytis goyderi Gould, unrecognised since description, types in British Museum.

Amytis modesta North, distinct Central Australian bird.

I described in 1910-11 three forms of the *striatus* series which fortunately have given little trouble so we can pass over those here.

In my "Reference List" in 1912 I arranged the forms of the *textilis* group as just given, but including *modestus* as a form and adding two more, thus :

<i>Diaphorillas textilis textilis</i> Dumont.	Shark's Bay, West Australia.
<i>Diaphorillas textilis giganturus</i> Milligan.	Mid Australia.
<i>Diaphorillas textilis morgani</i> Mathews.	S.E. of S.W. Australia.
<i>Diaphorillas textilis macrourus</i> Gould	South-west Australia.
= <i>varia</i> Carter.	

Diaphorillas textilis modestus North. Central Australia.

Diaphorillas textilis inexpectatus Mathews. New South Wales.

I also allowed my own forms of *striatus* thus :—

<i>Diaphorillas striatus striatus</i> Gould.	New South Wales.
<i>Diaphorillas striatus howei</i> Mathews.	Victoria, South Australia.
<i>Diaphorillas striatus oweni</i> Mathews.	Mid-west Australia.
<i>Diaphorillas striatus whitei</i> Mathews.	North Westralia.

and as a distinct species

Diaphorillas goyderi Gould. South Australia.

Soon after this Mellor described as a new species *Amytornis merrotsyi* from Lake Torrens, and Campbell and Kershaw added *Amytornis rufa* from the Interior of Northern Territory.

In my 1913 "List" I reduced the former to subspecific rank under *textilis* and the latter to subspecific rank under *striatus*, but otherwise made no change.

Captain White's explorations, however, brought to light three more forms and rather upset the values I had given some of the above. I described the bird North had determined as *textilis* from Central Australia as *D. t. purnelli*, another form which Ashby and Captain White at first thought was the long lost *A. goyderi* as *D. textilis indulkanna* also from Central Australia, and a different one from the Gawler Ranges as *D. textilis myall*.

THE BIRDS OF AUSTRALIA.

Carter then explored Dirk Hartog Island and rediscovered the true *D. textilis* of Dumont on Peron Peninsula, and I named the Dirk Hartog form *D. textilis carteri*.

Campbell recently pointed out that two series of birds were included in the *striatus* series and that Mellor's *merrotsyi* was nearer these and was not a form of *textilis* as I had given it. I also recorded that *D. purnelli* should be elevated to the rank of a distinct species.

At the present time the status of the species and subspecies is as follows :

<i>Diaphorillas textilis textilis</i> Dumont.	Peron Peninsula, West Australia.
<i>Diaphorillas textilis carteri</i> Mathews.	Dirk Hartog Island, West Australia.
<i>Diaphorillas textilis macrourus</i> Gould = <i>giganturus</i> Milligan = <i>megalura</i> Sharpe.	Mid-west Australia.
<i>Diaphorillas textilis varia</i> Carter.	South-west Australia.
<i>Diaphorillas textilis morgani</i> Mathews.	South-east of South-west Australia.
<i>Diaphorillas inexpectatus inexpectatus</i> Mathews.	New South Wales.
<i>Diaphorillas inexpectatus myall</i> Mathews.	Gawler Ranges, South Australia.
<i>Diaphorillas modestus modestus</i> North.	Meerenie Bluff, Central Australia.
<i>Diaphorillas modestus indulkanna</i> Mathews.	Indulkanna, Central Australia.
<i>Diaphorillas modestus obscurior</i> Mathews.	Broken Hill, New South Wales.
<i>Diaphorillas purnelli</i> Mathews.	MacDonnell Range, Central Australia.
<i>Diaphorillas striatus striatus</i> Gould.	New South Wales.
<i>Diaphorillas striatus howei</i> Mathews.	Victoria.
<i>Diaphorillas merrotsyi</i> Mellor.	Interior of South Australia.
<i>Diaphorillas whitei whitei</i> Mathews.	Mid-west Australia.
<i>Diaphorillas whitei oweni</i> Mathews.	Lower Mid-west Australia.

DIAPHORILLAS.

Diaphorillas whitei rufus Campbell and Interior of Northern Territory.
Kershaw

Eyramytis goyderi Gould. Lake Eyre District.

There are three other species of Grass-Wrens, *Magnamytis woodwardi* Hartert, *M. dorotheae* Mathews and *M. housei* Milligan, which do not cause any trouble.

Key to the Species.

Feathers striated above and below

Rump red

D. purnelli

Rump brown

Tail large (wide)

D. textilis

Tail short (narrow)

Bill thickish, back lighter

D. modestus

Bill thinish, back darker

D. inexpectatus

Feathers striated above only

Black moustachel stripe

Upper-surface reddish

D. whitei

Upper-surface brownish

D. striata

No black moustachel stripe

D. merrotsyi

Order PASSERIFORMES.

No. 568.

Family SYLVIIDÆ.

DIAPHORILLAS TEXTILIS.

GRASS-WREN.

(PLATES 467 & 468, bottom figures.)

MALURUS TEXTILIS Dumont, Dict. Sci. Nat. (Levrault), Vol. XXX., p. 117, May 29th, 1824 : based on Quoy and Gaimard, pl. 23, f.2 : Shark's Bay, West Australia=Peron Peninsula.

Malurus textilis Dumont, Dict. Sci. Nat. (Levrault), Vol. XXX., p. 117, May 29th, 1824 : Quoy and Gaimard, Voy. de l'Uranie and Physicienne, Zool., p. 107, pl. 23, f. 2, Sept. 18th, 1824 : Shark's Bay, West Australia.

Amytis textilis Lesson, Traité d'Orn., p. 454, 1831 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 107, 1883 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 23, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 221, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 248, 1904.

Amytis macrourus Gould, Birds Austr., pt. xxvi. (Vol. 3, pl. 30), March 1st, 1847 : Interior of W.A.=Wongan Hills ; *id.*, Proc. Zool. Soc. (Lond.), p. 2, 1847, March 29th ; *id.*, Handb. Birds Austr., Vol. I., p. 338, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 108, 1883 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 23, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 223, 1901 ; Gibson, Emu, Vol. IX., p. 73, 1909 ; Carter, *ib.*, p. 163, 1910 ; North, Vict. Naturalist, Vol. XXVI., p. 158, 1910 ; *id.*, Austr. Mus. Spec. Cat. No. 1, Vol. IV., pt. 5, p. 425, 1914.

Diaphorillas textilis Oberholser, Proc. Acad. Nat. Sci. Philad., 1899, p. 212.

Amytis gigantura Milligan, Victorian Naturalist, Vol. XVIII., p. 28, June 6th, 1901 : Mount Magnet, West Australia ; Carter, Emu, Vol. VIII., p. 104, 1908 ; Crossman, *ib.*, Vol. IX., p. 88, 1909.

Amytis megalura Sharpe, Zool. Rec. (1901), Aves, p. 68, 1902 : emendation of Milligan's name only.

Amytornis textilis Sharpe, Handl. Birds Brit. Mus., Vol. IV., p. 246, 1903 ; Mathews, Handl. Birds Austral., p. 80, 1908 ; Campbell, Emu, Vol. XVIII., p. 262, 1919 ; H. L. White, *ib.*, Vol. XX., p. 190, pl. xx., 1921.

Amytis varia Carter, Victorian Naturalist, Vol. XXV., p. 86, Sept. 10th, 1908 : Broome Hill, South-west Australia ; *id.*, Emu, Vol. VIII., p. 104, 1908.



H. Grönvold. del

DIAPHORILLAS TEXTILIS.
(GRASS WREN).

Witherby & Co

GRASS-WREN.

- Amytornis macrurus* Sharpe, Handl. Birds Brit. Mus., Vol. IV., p. 246, 1903; Mathews, Handl. Birds Austral., p. 80, 1908.
- Amytornis megalurus* Sharpe, *ib.*; Mathews, Handl. Birds Austral., p. 80, 1908.
- Amytornis varia* North, Vict. Nat., Vol. XXVI., p. 158, 1910.
- Amytornis gigantura* Jackson, Emu, Vol. IX., p. 136, 1910; Whitlock, *ib.*, p. 202, pl. xx., 1910; Gibson, *ib.*, Vol. X., p. 71, 1910; Whitlock, *id.*, *ib.*; Gibson, *ib.*, p. 341, 1911.
- Diaphorillas textilis textilis* Mathews, Nov. Zool., Vol. XVIII., p. 364, 1912; *id.*, List Birds Austr., p. 231, 1913; Carter, Ibis, 1917, p. 605.
- Diaphorillas textilis giganturus* Mathews, Nov. Zool., Vol. XVIII., p. 364, 1912; *id.*, List Birds Austr., p. 231, 1913.
- Diaphorillas textilis morgani* Mathews, Nov. Zool., Vol. XVIII., p. 364, Jan. 31st, 1912: Cardinia, South-east Coast of West Australia; *id.*, List Birds Austr., p. 231, 1913.
- Diaphorillas textilis macrourus* Mathews, Nov. Zool., Vol. XVIII., p. 365, 1912; *id.*, List Birds Austr., p. 231, 1913.
- Diaphorillas textilis carteri* Mathews, Austral Av. Rec., Vol. III., pt. 5, p. 87, pl. 3, July 21st, 1917: Dirk Hartog Island, West Australia; Carter, Ibis, 1917, p. 599.
- Amytornis textilis carteri* Whitlock, Emu, Vol. XX., p. 183, 1921.

DISTRIBUTION. Western Australia (Mid- and South-West).

Adult male. Crown of head, nape, mantle and back, blackish-brown with white shaft-streaks and smoke-brown margins to the feathers; lesser upper wing-coverts like the back but inclining to rufous; median and greater upper wing-coverts, bastard-wing, primary-coverts and flight-quills blackish-brown with pale margins and whitish shafts; rump, and upper tail-coverts rust-brown with whitish shafts to the feathers; tail-feathers dark brown with pale margins and dark obsolete cross-bars; sides of face, chin, and throat similar to the top of the head but much paler; breast and sides of body pale rust-brown with whitish shaft-lines which become almost obsolete on the lower flanks, thighs, and under tail-coverts; middle of abdomen buffy-white with blackish bases to the feathers; axillaries, under wing-coverts, and inner margins of quills below, cinnamon, remainder of quills below blackish-brown with whitish shafts; lower aspect of tail similar to its upper-surface but paler and having white shafts to the feathers. Bill bluish horn, mouth yellow, eyes light hazel, feet purplish-brown. Total length 192 mm.; culmen 13; wing 68; tail 93; tarsus 25. Figured. Collected on Dirk Hartog Island, West Australia, on May 18th, 1916, and is the type of *Diaphorillas textilis carteri*. (Plate 467, top figure.)

Adult female. Differs from the male in having a reddish patch on the sides of the body. General colour of the upper-surface rust-brown, somewhat darker on the head, with white shaft-lines to the feathers on the head, back, and upper wing-coverts; greater upper wing-coverts blackish-brown with pale margins; rump and upper tail-coverts similar to the back; tail-feathers dark brown with pale edges and dark obsolete cross-bars on some of the feathers; sides of the face and throat similar to the crown of the head, but paler; sides of the body bright chestnut; lower flanks and thighs dusky-brown; abdomen dark isabelline; under wing-coverts and inner margins of quills below cinnamon; remainder of quill lining dark brown with white shafts to the feathers; lower aspect of tail blackish, the feathers narrowly edged with buff. Eyes dull yellow, feet and legs bluish-purple, bill blue horn, mouth and tongue yellow. Total length 173 mm.; culmen 10, wing 69, tail 86, tarsus 28. Figured. Collected on Dirk Hartog Island, West Australia, on the 29th of October, 1916. (Plate 467, bottom figure.)

THE BIRDS OF AUSTRALIA.

Adult female. General colour of the upper-surface smoke-brown with white shaft-lines to the feathers on the head, upper-back, scapulars, upper wing-coverts and upper tail-coverts; somewhat darker on the head and hind-neck; inner webs of flight-quills dark brown with buff margins; tail-feathers similar with dark obsolete cross-bars; sides of face and sides of neck like the crown of the head; rictal bristles well developed and directed laterally; throat, breast, and sides of breast similarly marked to that of the upper-surface but much paler, becoming darker and uniform in colour on the abdomen, lower flanks, thighs, and under tail-coverts; axillaries, under wing-coverts, and inner margins of quills below cinnamon-buff, remainder of quill-lining hair-brown; lower aspect of tail hair-brown with pale shafts and pale margins to the feathers, some of the feathers are slightly tinged with rufous. Eyes red-hazel, feet and tarsus purplish-flesh, soles yellowish, bill dark horn. Total length 200 mm.; culmen 11, wing 75, tail 105, tarsus 28. Figured. Collected near Broome Hill, South-west Australia, on the 21st of June, 1908, and is the type of *Amytis varia* Carter. (Plate 467, middle figure.)

Adult male. General colour of the upper-surface rust-brown, with white shaft-lines to the feathers, darker on the fore-part of the head and paler on the lower back, rump, and wings, where the white shaft-lines are almost absent; marginal lesser upper wing-coverts tinged with rufous; inner-webs of flight-quills blackish-brown with more rufous at the base; tail also blackish-brown with fulvous margins to the feathers; the feathers on the sides of the face rust-brown with white shaft-streaks, and blackish bases to the feathers; rictal bristles black with white bases; lores cinnamon-rufous at the base; chin, and upper throat grey with white centres to the feathers becoming pale ferrugineous on the fore-neck and breast, where the feathers are lined with white; abdomen, sides of body, thighs, and under tail-coverts similar but rather darker and the white streaks almost absent; axillaries, under wing-coverts and inner margins of flight-quills below pale rufous, remainder of quill-lining dark brown; lower aspect of tail paler than its upper-surface and the shafts of the feathers whitish. Upper mandible and tip of lower brown, base of lower whitish-grey. Eyes brown, feet and legs brown. Total length 190 mm.; culmen 12, wing 68, tail 89, tarsus 27. Figured. Collected at Yalgoo, West Australia, on the 13th of January, 1908. (Plate 468, lower left hand figure.)

Adult female. General colour of the upper-surface dark ochreous-brown with white shaft-lines to the feathers, which are bordered with black on the top of the head, hind-neck and mantle; lower back, rump, and upper tail-coverts more uniform and the white shaft-lines less conspicuous; lesser upper wing-coverts inclining to pale rufous with pale shaft-lines to the feathers, remainder of wing similar to the back but the shaft-lines less conspicuous, inner webs of flight-quills dark brown margined with pale rufous; tail dark brown with slightly paler edges to the feathers and wavy obsolete cross-bars; sides of face streaked with white and smoke-brown and blackish bases to the feathers; rictal bristles black with white bases; lores cinnamon at the base; chin also cinnamon with black hair-like tip to the feathers; throat, fore-neck and upper breast ferrugineous-brown with white shaft-lines, like the sides of the neck; middle of lower breast and middle of abdomen pale buff, with dark bases to the feathers; sides of body bright chestnut; lower flanks uniform rust-brown like the thighs and under tail-coverts; axillaries, under wing-coverts, and inner margins of flight-quills below cinnamon-rufous; remainder of quill-lining pale hair-brown; lower aspect of tail similar to its upper-surface. Bill dark horn, eyes dark brown, feet and legs black. Total length 190 mm.; culmen 10, wing 67, tail 96, tarsus 26. Figured. Collected at Day Dawn, West Australia, on the 18th of April, 1903. (Plate 468, lower right hand figure.)

Immature. Resemble the adults in general.

GRASS-WREN.

Nest. "Usually placed in the centre of a low, thick bush and varies from one foot to two feet and a half from the ground. Bulky in structure, with little roof. Composed of grass, with entrance near the top, the eggs being visible from outside. No lining beyond fine grass. The lower part is strongly made, but the upper part is very loosely put together." (Gibson.)

Eggs. "Clutch two to three. White, or reddish-white, over which are sprinkled dots and small, irregular shaped spots and a few blotches of rich red or pinkish-red and having similar, but fewer, underlying markings of lilac-grey, all of them being more thickly disposed towards the larger end, where they are confluent and assume the form of an irregular zone. 19-20 mm. by 16." (North.)

Breeding-season. August to October. (*ib.*)

Nest. "An open cup-shaped structure, constructed of strips of bark and long portions of a soft, white flowering plant. Lined with short, soft pieces of flat grass and plant stems, also a quantity of soft, white vegetable matter. Width over all $4\frac{3}{4}$ inches; egg cavity $2\frac{1}{4}$ wide by $1\frac{1}{2}$ deep. Placed in a dense salt bush about 20 inches from the ground." (White.)

Eggs. "Clutch three, warm white or dull pink, beautifully marked all over with spots and blotches of very rich reddish-brown, which become confluent at the larger end, where they form an irregular zone or cap. 22-23 mm. by 17." (*ib.*)

Breeding-season. August (Lake Way).

WHEN the early explorers visited Australia, they of course used sailing vessels and sought sheltered harbours for rest after their long voyages without much consideration as to eventual settlement. Later expeditions with the latter object in view did not pay much attention to the early points, but searched for suitable situations combining all facilities for continued habitation. Consequently some of the places called at by the earliest travellers have scarcely ever since been visited.

Further, when ornithology was in course of development, little attention was paid to exact geographical details save by those who had themselves collected the specimens and then only in an erratic manner.

Thus Gould having visited Australia, and noted the divers manners of country, had little hesitation in naming slight distinctions in bird life as long as the specimens came from different localities, but in the present case he erred strangely in overlooking the facts of geography. He found a Grass-Wren living on the plains bordering the Lower Namoi in New South Wales, and, comparing it with the figure in the *Voyage de l'Uranie*, recognised it as identical and used the name *Amytis textilis* given to that figure. Later he described a new species from Western Australia, naming it *Amytis macrourus*, and observing "Is evidently the representative of *A. textilis* of the eastern coast," whereas *A. textilis* had been described from Western Australia. It is a quaint commentary on the practice of the succeeding line of British ornithologists that they should have neglected the correction of such an obvious error. In the authoritative *Catalogue of the Birds in the British Museum* the names were

THE BIRDS OF AUSTRALIA.

used as given by Gould, apparently because the author was too busy to investigate the matter himself, and the easiest way was acceptance.

Then Milligan got a Grass-Wren from Day Dawn and differentiated it from *macrourus* from Gould's description alone, and without considering the confusion, nor carefully attending to the poor description Gould had given.

Then Carter, securing a Grass-Wren at Broome Hill, described it as new, comparing it with Milligan's *gigantura*, but later he withdrew his species, considering that it was the long lost Gouldian *macrourus* and this has been accepted. Here again there appears to be a doubt, as Gould's *macrourus* was "shot in the interior by Gilbert" and we know that Gilbert's "interior of West Australia" was inland in the York district to the Wongan Hills.

These were apparently closely allied to Gould's *textilis*, as Keartland maintained that Milligan's species was the same as he had called *textilis* from East as well as West Australia. However, the true *textilis* had never been collected until Mr. Tom Carter, at my request, undertook the exploration of Dirk Hartog Island and the Peron Peninsula. He there found Grass-Wrens comparatively plentiful, but very difficult to secure; but as no one had apparently collected on the island since Quoy and Gaimard one hundred years previously, he was enabled to make close observations, which I published in the *Austral Avian Record*, Vol. III., 1917, pp. 79 *et seq.*, wherein I also gave the technical history of the species which will follow here.

Carter wrote: "Jan. 2, 1917. On several occasions previous to this date I had seen a single, and once a pair of birds, in low scrub near Denham on Peron Peninsula, that I felt sure were *Diaphorillas*. One day I had a shot at one with No. 10 shot, but although the bird seemed to be hit, I lost it in scrub. For eight consecutive days I was hunting round the vicinity, when I saw a bird moving in the bottom of the scrub. I chirped with my lips, and at once it emerged from below the bush, and ran *away* from me, with *wings drooping* and *feathers puffed out*, to underneath a dense 'needle' bush, under whose shelter it paused. I had not a very clear view of it, but shot and killed it, a male *Diaphorillas textilis* with testes enlarged. In measurement it is much the same as Dirk Hartog birds, but the plumage is darker, brighter, and with bolder markings than any from Dirk Hartog Island. The Peron bird is MUCH more wary than the others." This note refers absolutely to the TYPICAL *textilis* collected by Quoy and Gaimard.

Mr. Tom Carter has given a full account of the finding of this bird on Dirk Hartog in the *Ibis*, 1917, pp. 599-605, from which I extract the following notes: "These Grass-Wrens appear to be very silent birds, and the three peculiar movements that I have attempted to describe do not appear to have been recorded for any others of the genus, viz. :—

GRASS-WREN.

"1. Displaying themselves with outspread wings and tail. It appeared to result from curiosity and anger combined.

"2. Climbing up the branches of bushes. As this action was performed in the midst (not outside) of densely foliated bushes, it was impossible to be certain whether the beak was used as well as the feet, but it seemed as if it was, the action being the same as when Parrots climb.

"3. Jumping to the ground from bushes, apparently without spreading the wings, which most birds use in such cases.

"The gizzards of almost all the Grass-Wrens examined were found to contain a few very hard yellow objects that looked like seeds from some bush or plant. . . . I failed to collect any seeds resembling them. They appeared to be too hard to be eggs of any description, as it was very difficult to cut one with a pocket-knife.

"No breeding notes were made, and no immature birds were obtained. This species was very partial to the dark shade and shelter afforded by the large clumps of spreading wattles that seemed to be of a variety peculiar to Dirk Hartog Island. The striped mantles of this Grass-Wren are eminently protective when the birds are in the dark shade of the lower branches of the wattles, as the white stripes blend with the whitish dead twigs, which are always very numerous in the lower part of the bushes.

"This species is at times very tame, or perhaps inquisitive would be a better word, but, as a rule, the birds are of the most agile and elusive habits, as may be inferred from the above notes. They are undoubtedly very local in distribution on the island, but being so chary of leaving the shelter and security of the thick scrub, they are probably more numerous than is apparent. It is to be feared that domestic cats in a wild state, which are now becoming numerous on the island (as well as everywhere else in Western Australia), will be a great menace to this and other scrub-hunting birds. At my suggestion, Dirk Hartog Island has been recently proclaimed a reserve for Native Game by the Colonial Secretary of Western Australia. The female birds only have the chestnut flank marks."

Whitlock then was sent by H. L. White to find the nest and eggs of these birds, and he wrote: "I regret that owing to the ravages of cats on Dirk Hartog I did not see a single example during a persistent search of three months' duration. I had my experiences with the interior form at Lake Austin and Lake Way to guide me, so I do not think I was personally at fault. . . . On crossing over to Peron Peninsula . . . I was successful . . . I sat down under a bush . . . my attention was arrested by the sound of three peculiar high-pitched notes uttered in a descending scale very difficult to express on paper. I 'chirped' in reply, when out hopped a fine male Grass-Wren at a distance of 10 yards. . . .

THE BIRDS OF AUSTRALIA.

In a large valley nearer the township of Denham I found a family of Grass-Wrens. . . . I found the Grass-Wrens on Peron just as wary and difficult to observe as those at Lake Austin and Lake Way. The reason they are still present on Peron appears to be the abundance of rabbits on which the bush cats prey in preference to birds."

If Whitlocks' experience is confirmed, and the Dirk Hartog birds have been exterminated by cats in these few years, the bird will prove almost as interesting as Dieffenbach's Rail. This Rail lived at the Chatham Islands, off New Zealand, in considerable numbers, and a specimen was procured by Dr. Dieffenbach about 1840, which is now in the British Museum. Before another ornithologist visited the Islands the species had become extinct and the British Museum specimen is unique. If Carter had not visited the island when he did the same story might have been exactly written.

Gould described *Amytis macrourus* and wrote: "The present is the only species of the genus that has been discovered in Western Australia; two examples were shot in the interior by Gilbert, who states that 'it inhabits the thickets, and is almost always on the ground, moving about in families of from four to seven in number; it carries its tail more erect than any other bird I have seen, and certainly no bird runs or rather hops over the surface of the ground with greater rapidity.' It is evidently the representative of the *Amytis textilis* of the eastern coast, to which it is very nearly allied, but from which, as well as from the *A. striatus*, it may at once be distinguished by its more robust form, and by the much greater length and size of its tail."

His description reads: "All the upper-surface brown, each feather with a narrow stripe of white down the centre; under-surface the same, but much paler; under-surface of the shoulder pale rusty-red; tail brown, margined with pale brown; irides hazel; base of the lower mandible horn-colour, remainder of the bill black; feet flesh-brown. Total length $5\frac{1}{2}$ inches, bill $\frac{1}{2}$, wing $2\frac{7}{8}$, tail $2\frac{1}{8}$, tarsi $\frac{7}{8}$."

Some of the measurements are wrong, a not uncommon failing in connection with Gould's work. Thus the tail of *macrourus* is of "much greater length and size" than that of *striatus*, which Gould gives as $3\frac{1}{2}$, and the total length is obviously wrong.

Milligan's *gigantura* approximates much more closely to Gould's *macrourus* in detail as follows:—

<i>macrourus</i>	T.l. $5\frac{1}{2}$, error, say $7\frac{1}{2}$ in.	<i>gigantura</i>	7.25 inches
	bill $\frac{1}{2}$ inch		.5 inch
	wing $2\frac{7}{8}$ inches		2.75 inches
	tail $2\frac{1}{8}$, error, or $3\frac{1}{2}$ +		3.75 inches
	tarsi $\frac{7}{8}$ inch		.95 inch

GRASS-WREN.

I measured a series sent me from the Perth Museum from Yalgoo and Day Dawn, and mine agree with Milligan's as wing 2·50–2·70 inches; bill ·5 inch, tail 3·45–3·90 and tarsus ·8–·9 inches.

Under the name *Amytis textilis* Gould, Mr. G. A. Kearnland wrote: "I first saw these birds in June, 1894, at Idracowra [*D. purnelli*], in Central Australia. They were running about singly with tail erect, amongst the triodia tussocks, feeding on spiders and other insects. Whenever two birds came in contact they fought or chased each other. I shot three, all of which proved to be males. Probably their mates were busy with their eggs. These were the only specimens of the species I secured whilst with the Horn Scientific Exploring Expedition. Messrs. North and Zietz agreed in the identification. [Three female birds which I shot at Stokes' Pass and which at first I thought belonged to this species were, on closer inspection and in view of their different habits and markings, separated by North as a new species (*modesta*)]. Mr. C. E. Cowle afterwards shot several at their nests and forwarded the skins with their eggs. In 1896, I accompanied the Calvert Exploring Expedition through the Great Desert of West Australia. We started from Geraldton eastward, passing Cue and turned north near Lake Augusta. Throughout the journey we heard a noise coming from the triodia tussocks which sounded more like the note of an insect than that of a bird, but when the tussock was kicked and the bird dislodged, it fluttered or ran to the next hiding place. I shot fifteen of all ages and sexes and secured a pair of young ones well feathered but unable to fly. They were all alike in colour and markings, irrespective of age or sex. They are very active birds with fleshy, muscular thighs. At Brookman Creek I shot two perched on twigs about a foot high; these were the only ones I ever saw perched. They have a low plaintive song which they only utter when at rest. I afterwards found the same birds near the Margaret River and secured a clutch of heavily incubated eggs. The nest was covered, but with such a large side opening as to make it difficult whether it should not be described as an open structure. The eggs, two in number, were swollen oval, short and so heavily marked with deep red spots as to obscure the white ground. These birds appear to be identical with the *Amytis gigantura* of Milligan."

Whitlock recorded from the East Murchison: "The Large-tailed Grass-Wren was another Lake Austin friend I hoped to meet with at Lake Way. I was not disappointed. It is a most difficult bird to find, especially if the weather be windy or wet and cold. As at Lake Austin, it was strictly confined to the salt-bush near the lake. This family of birds is said to favour rocky or stony places. It may be true of other members, but I never saw the present species in any such country. Though there were outcrops of rocks near two of its haunts at Lake Austin, and again a huge outcropping quartz reef at Lake

THE BIRDS OF AUSTRALIA.

Way, I never saw an individual amongst the *debris* surrounding these formations. The species of salt-bush it prefers grows to a height of about 3 feet. . . . I can give no hints as to how to find this bird. One may pay visit after visit and spend hours in its haunts without seeing more than its tracks. Another day one may walk right up to the bush it is skulking under, but it does not follow that the *Amytornis* will break cover. If it has a song it seldom utters it. The call note is faint and very high-pitched, but both at Lake Austin and Lake Way I heard individuals utter a sound precisely like the mew of a cat. The female is much more wary than the male, and one seldom gets more than a glimpse of her as she bounds from bush to bush. On a single occasion, the weather being calm and genial, I had the exceptional opportunity of seeing three of these Grass-Wrens at the same moment. I knew a party was about, and at the expenditure of some patience and artifice I enticed them around me. One hopped to the top of a salt-bush, another came out in the open and even began pecking about, whilst a third took a series of peeps at me from behind another bush. From the large size of their tails I judged all these to be males. The male, too, shows no rufous patches at the side of the breast."

Whitlock then described the finding of the nest, which was open, and made some comments on the confusion between *textilis*, *gigantura* and *macrourus*, acknowledging that the two latter might prove to be the same, but "the Western birds, should not, with our present knowledge, be referred to the smaller and less robust *A. textilis* (of the East!)."

Mr. Tom Carter's notes read: "On June 6th, 1908, two Large-tailed Grass-Wrens were seen by me in one of my paddocks near Broome Hill, and also on two or three subsequent dates they were seen near the same place, on a small rounded stony hill, having a patch of 'marlock' scrub on one side of it. On June 21st, I succeeded in shooting one of these birds and being misled by the description of Gould's *A. macrourus* in Gould's Handbook, Vol. I., p. 338, where the total length is stated to be $5\frac{1}{2}$ inches, while my bird measured $7\frac{1}{2}$ inches, I described my specimen as *A. varia*. Mr. A. J. North afterwards pointed out to me that Gould's measurement was an error, so I withdrew my name in favour of Gould's.

"Oct. 19, 1908. One of these birds was shot out of a party of six in marlock scrub about thirty miles east of Broome Hill (probably a family of adult birds and fledged young of the year). On Sept. 1, 1910, another specimen was obtained near the same locality by chasing it until it ran into a small hole under a tree stump, whence it was captured alive. These birds run with extraordinary speed and tails erect in the bottom of the scrub, in small parties of four or six. One of the above specimens was eight inches in length. Most

GRASS-WREN.

probably the two stray birds seen in my paddock at the small isolated patch of 'marlock' had been driven down from their usual haunts further east by extensive bush fires that had been raging there. Broome Hill aboriginal name 'Tcher-ree.' "

When Carter described his *A. varia*, he compared it with Milligan's *gigantura*, noting his species was larger, had no chestnut patches on body or shoulders [the sign of the female], the upper-surface in three distinct shades, the dark head and neck being very pronounced, while Milligan's was a "uniform dull brown," and Carter's measurements read "Total length 7.50, wing 3.0, tail 4.20, tarsus 1.20 and culmen .4 inch."

There can be little hesitation in reinstating Carter's form as validly distinct from Gould's *macrourus*, which is probably the same bird as Milligan named *gigantura*, the differences being indefinable at present.

In the Austral. Avian Record, Vol. III., pt. 4, p. 79, *et seq.*, 1917, I have given completely the early technical complication with regard to the authority for *Malurus textilis* which I showed, though commonly accredited to Quoy and Gaimard, was first described by Dumont.

In the preceding pages, I have outlined the confusion Gould perpetuated through using the name given to a West Australian bird for a bird he found in New South Wales, and then describing the West Australian bird as a new species. Since that date many species have been referred to by this earliest name given to a Grass-Wren and it has been difficult to disentangle the records. I am now inclined to think that at present more than one species is here included under *textilis*.

The true *textilis* forms are

Diaphorillas textilis textilis (Dumont).

Peron Peninsula, West Australia.

Diaphorillas textilis carteri Mathews.

Dirk Hartog Island.

This island form is paler, duller, with less bold markings than the former. Whitlock suggests these are identical without seeing any specimens, which is not wise in this genus.

Diaphorillas textilis macrourus (Gould).

Wongan Hills, Mid-west Australia.

Of this, at present, *Amytis gigantura* Milligan can only be regarded as synonymous, the type locality of that form being Mount Magnet in the same kind of district, and Milligan's specimens agree very closely with Gould's plate, which Carter's, the next subspecies, do not. Sharpe altered Milligan's *gigantura* to *megalura* because he thought the former was not good Greek, which it is.

THE BIRDS OF AUSTRALIA.

Diaphorillas textilis varius (Carter).

Broome Hill, South-west Australia.

Noticeably darker than the former, and easily recognised by most workers.

Diaphorillas textilis morgani Mathews.

Cardinia, South-east Coast of West Australia.

I described this: "Differs from *D. t. gigantura* in being much darker below, more like *macrourus*, but having the tail more as in *gigantura*. The white shaft-streaks on the head are not so distinct as in the above two birds."

In this description *gigantura*=*macrourus* above and *macrourus*=*varius* above.



H. Grönvold. del

Witherby & Co

DIAPHORILLAS MODESTUS.
(THICK-BILLED GRASS-WREN).

DIAPHORILLAS TEXTILIS.
(LARGE-TAILED GRASS-WREN).

DIAPHORILLAS MODESTUS.

THICK-BILLED GRASS-WREN.

(PLATE 468, top figures.)

AMYTIS MODESTA North, Victorian Naturalist, Vol. XIX., p. 103, Nov. 6th, 1902: Meerenie Bluff, MacDonnell Ranges, Central Australia.

Amytis modesta North, Vict. Nat., Vol. XIX., p. 103, 1902; Kcartland, *ib.*, Vol. XX., p. 137, 1904; North, Austr. Mus. Spec. Cat., No. 1, Vol. 1, p. 249, 1904.

Diaphorillas textilis modestus Mathews, Nov. Zool., Vol. XVIII., p. 365, 1922; *id.*, List Birds Austr., p. 232, 1913; *id.*, Austral Av. Rec., Vol. II., p. 136, 1915.

Eyramytis goyderi (not of Gould) S. A. White, Trans. Roy. Soc. South Austr., Vol. XXXVIII., p. 432, 1914; *id.*, *ib.*, Vol. XXXIX., p. 754, 1915; Ashby, South Austr. Ornith., Vol. II., p. 10, 1915.

Diaphorillas textilis indulkanna Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Indulkanna, Everard Ranges, Central Australia.

DISTRIBUTION. Central Australia, MacDonnell, Musgrave and Everard Ranges.

Adult male. Fore part of head dark brown with white shaft-lines to the feathers, becoming ochreous-brown on the nape, hind-neck, sides of face, sides of neck, and upper-back; lower back, rump, upper tail-coverts, and wings pale ochreous-brown, the white shaft-lines almost entirely absent; the lesser marginal upper wing-coverts tinged with fawn-colour; flight-quills hair-brown with more or less buff on the basal portion; tail pale brown with whitish margins to some of the feathers; rictal bristles black with white bases; lores tinged with cinnamon; throat, breast, and abdomen buffy-white, some of the feathers on the chin black and have hair-like tips; darker and inclining to fawn-colour on the lower flanks, thighs, vent, and under tail-coverts; axillaries, under wing-coverts, and inner margins of quills below cinnamon-buff, remainder hair-brown; lower aspect of tail similar to its upper-surface but paler. Bill darkish horn, feet blackish-brown. Total length 150 mm.; culmen 10, wing 63, tail 78, tarsus 25. Figured. Collected at Wyuna, Broken Hill, New South Wales, on the 1st of October, 1912, and is the type of *Diaphorillas modestus obscurior*.

Adult female. Differs from the adult male in having a reddish patch on the sides of the body. Fore part of head blackish with white shaft-streaks to the feathers, becoming paler on the nape, sides of face, sides of neck, and upper back; lower back, rump, upper tail-coverts and wings rust-brown and the shaft-lines much less conspicuous; flight-quills hair-brown on the inner webs with buff margins; tail dark brown with fulvous margins to the feathers; rictal bristles black; lores and upper eyelid cinnamon; chin buffy-white, some of the feathers have black hair-like tips, with dark bases to the feathers; breast and abdomen pale fawn-colour becoming darker on the vent, lower flanks, thighs, and under tail-coverts; a patch of chestnut on the sides of the body; axillaries and under wing-coverts cinnamon-rufous; under-

THE BIRDS OF AUSTRALIA.

surface of flight-quills hair-brown with cinnamon-buff margins ; lower aspect of tail similar to its upper-surface but rather paler. Bill black with base of lower ashy-grey, feet black, eyes brown. Total length 145 mm. ; culmen 8, wing 59, tail 73, tarsus 23. Figured. Collected at Indulkanna Springs, Central Australia, on the 11th of July, 1914, and is the type of *Diaphorillas textilis indulkanna*. (Top right hand figure.)

Immature. Are very similar to the adult.

Nest. "Similar to that of *D. textilis*." (North.)

Eggs. "Clutch two, swollen ovals in shape, ground-colour of a dirty and pale creamy-white, well marked all over, more particularly at the larger end, with spots and blotches of brown, and of dull to rich reddish and rusty-brown. Surface of shell fine and smooth and rather glossy. The clutch measures 22 mm. by 15." (H. L. White.)

Breeding season. After rain early in the year.

MR. G. A. KEARTLAND, who discovered *Amytis modesta* North, has written me : "At Stokes's Pass, MacDonnell Ranges, Central Australia, these birds were found in companies of six or eight at a time. Instead of hiding in the triodia they kept dodging about the rocky walls of the Pass and when disturbed either ran into the crevices of the rocks or hid amongst the smaller stones. I shot three, all of which proved to be females. Their bills were not quite as strong as those of *A. textilis*, their backs a little lighter in colour and their breasts even cinnamon-brown, lacking the stripes of that species. I saw them again in a rocky gorge in West Australia where they were in small companies and appeared to be very sociable. Several clutches of their eggs forwarded to me by Mr. C. E. Cowle from the place where I obtained my first specimens, were mottled red and white. They are longer than those of *A. textilis*."

North distinguished this species at Kearthland's suggestion, observing : "Like *textilis*, but paler above with the throat whitish and the bill deeper and not so pointed."

Under name *Eyramytis goyderi* Capt. S. A. White observed : "We saw these birds on three or four occasions, always in the dry, sandy watercourses, but they always escaped into large masses of debris which were piled up against the trees by the flood waters. Notwithstanding that these heaps of rubbish were surrounded by our boys and set fire to, they escaped. It was not until we were halfway between Hermannsburg and Alice Springs that a specimen was secured." Later he added : "*Eyramytis* sp. A bird of this genus was met with near Indulkanna Springs, which was taken at the time for *E. goyderi*, but since then, Gould's plate of the latter bird having been examined, it is easily seen that the skins in the Adelaide Museum labelled *E. goyderi* are not that bird, but agree fairly well with this doubtful species."

Apparently the birds referred to in the Adelaide Museum include the one collected by Love and recorded by Ashby under the name *E. goyderi*, when

THICK-BILLED GRASS-WREN.

the eggs were described. Ashby wrote: "The nest, containing two eggs, with the parent birds was obtained at Douglas Creek, near William Creek, Central Australia, in January, 1913, by my friend, Mr. J. R. B. Love. . . Mr. Love was able to secure the parent birds. One is in my collection, and the other in the Adelaide Museum. . . Mr. Love informs me that the parent bird crouched in the blue-bush, allowing him to approach and almost close the hand over it, when it flitted to the next bush. This species was seen at intervals from Douglas Creek to Barrow Creek."

When I received Captain S. A. White's specimen from Indulkanna I named it

Diaphorillas textilis indulkanna.

"Differs from *D. t. modesta* (North) in being darker above with a shorter tail and bill."

I now separate *modestus* as a distinct species.

Upon my return from Australia I published the following note: "*Diaphorillas textilis modestus* (North) was compared by North with a bird from Petermann Creek, which he considered the true '*textilis*' of Quoy et Gaimard. This bird I have since named *D. t. purnelli*; it differs from West Australia birds from Day Dawn and Yalgoo in having a shorter tail, and the throat and under-surface much more suffused with reddish."

"I have birds from near Broken Hill, New South Wales, which agree with '*modestus*,' which latter type I have examined. I have also examined the co-type of '*modestus*' from Mossgiel District. The range, therefore, will be Central Australia and New South Wales (from Broken Hill to Mossgiel District)."

Re-examining the birds from Broken Hill I find that they differ from typical *modestus* from the MacDonnell Ranges in being duller above, not so rufous on the rump, the throat whiter and the flanks browner.

I name this

Diaphorillas modestus obscurior subsp. nov.

Type from Wyurra, Broken Hill, New South Wales, October 1st, 1912, and is figured and described.

This makes at present three recognisable subspecies

Diaphorillas modestus modestus (North).

MacDonnell Ranges, Central Australia.

Diaphorillas modestus indulkanna Mathews.

Musgrave and Everard Ranges.

Diaphorillas modestus obscurior Mathews.

Interior of South-western New South Wales.

DIAPHORILLAS INEXPECTATUS.

EASTERN GRASS-WREN.

(PLATE 469, two top figures.)

DIAPHORILLAS TEXTILIS INEXPECTATUS Mathews, Nov. Zool., Vol. XVIII., p. 365, Jan. 31st, 1912: New South Wales.*

Amytis textilis (not of Dumont 1824) Gould, Birds Austr., pt. III. (Vol. III. pl. 28), June 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 335, 1865.

Diaphorillas textilis inexpectatus Mathews, Nov. Zool., Vol. XVIII., p. 365, 1912; *id.*, List Birds Austr., p. 232, 1913.

Amytornis modestus (not of North) S. A. White, Emu, Vol. XIII., p. 28, 1913 (S.A.).

Diaphorillas textilis myall Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 90, July 7th, 1916: Myall Creek, Cariewerels, Gawler Ranges, South Australia.

DISTRIBUTION. New South Wales and South Australia.

Adult male. General colour of the upper-surface dark smoke-brown with white narrow shaft-lines to the feathers on the top of the head, sides of face, sides of neck, hind-neck, back, scapulars, upper tail-coverts and upper wing-coverts; fore-part of head rather darker than the back, the white shaft-streaks only slightly shown on the rump and upper tail-coverts; flight-quills hair-brown margined with cinnamon-rufous on the basal portion of the inner-webs; tail-feathers dark hair-brown with pale edges and obsolete cross-bars; rectal bristles black and directed laterally; the feathers in front of the eye and behind the nostrils fulvous at the base with black hair-like tips to the feathers like the chin; throat, fore-neck, and breast fulvous with white elongated centres to the feathers, becoming more uniform on the sides of the body, thighs, abdomen and under tail-coverts; axillaries, under wing-coverts and inner margins of flight-quills below bright cinnamon, remainder of quill-lining hair-brown; lower aspect of tail similar to its upper-surface, but rather paler. Eyes brown, feet brownish-black, bill slaty-black. Total length 167 mm.; culmen 10, wing 64, tail 87, tarsus 25. Figured. Collected at Myall Creek, Cariewerels Station, Gawler Ranges, on the 16th of September, 1912, and is the type of *Diaphorillas myall*.

Adult female. Differs in having a reddish patch on the sides of the body.

Adult male. General colour of the upper-surface pale smoke-brown with somewhat broad white shaft-lines to the feathers on the top of the head, sides of face, sides of neck, hind-neck, back, scapulars, and upper wing-coverts; fore part of head darker and inclining to blackish-brown like the cheeks; rump and upper tail-coverts

* As this is a skin from an old collection it may be from the Lower Namoi River. But this, of course, is only surmise.



H. Grönvold, del.

Witherby & Co.

DIAPHORILLAS INEXPECTATUS.
(EASTERN GRASS-WREN).

DIAPHORILLAS MERROTSYI.
(CHESTNUT MANTLED GRASS-WREN).

EASTERN GRASS-WREN.

almost uniform ; flight-quills hair-brown, rather darker on the innermost secondaries, with pale shafts, and cinnamon-rufous on the basal portion of the inner webs ; tail similar but slightly darker, more uniform, and having obsolete cross-bars ; rectal bristles black ; feathers in front of the eye whitish at the base with black hair-like tips like those of the chin ; throat, fore-neck and breast pale cinnamon with whitish shaft-streaks ; abdomen whitish fawn colour ; sides of body, thighs and under tail-coverts dull cinnamon ; axillaries, under wing-coverts and inner margins of flight-quills below bright cinnamon-rufous, remainder of the quill-lining pale hair-brown ; lower aspect of tail similar to its upper-surface, but paler. Total length 165 mm. ; culmen 11, wing 65, tail 77, tarsus 23. Collected in New South Wales [Namoi River ?] in November, 1886, and is the type of *D. inexpectatus*.

Immature female. General colour of the upper-surface blackish-brown with white shaft-lines to the feathers on the top of the head, where some of the feathers still retain traces of down on the tips, sides of face, sides of neck, hind-neck, and mantle ; upper wing-coverts, flight-quills, and tail-feathers margined with rufous-brown ; rectal bristles black with whitish bases ; throat pale smoke-brown, becoming darker on the breast and abdomen, and rufous-brown on the sides of the body, flanks, thighs, and under tail-coverts ; under-surface of flight-quills paler than above ; lower aspect of tail also paler than its upper-surface. Collected on Myall Creek, Cariwerels Station, Gawler Ranges, South Australia, on the 16th of September, 1912.

Nest and Eggs not described.

UNDER the title "*Amytis textilis*" Gould figured a Grass-Wren and wrote : "The bird figured in the 'Voyage de l'Uranie' doubtless represents the present species, while that figured by Lesson in the Atlas to his 'Traité d'Ornithologie,' and which seems to have been the subject from which he took his generic characters and description, as clearly belongs to *A. striatus*. The only place in which I observed the Textile-Wren was the plains bordering the Lower Namoi ; and that its range extends far to the northward and westward is tolerably certain. In the various positions it assumes, in the elevated carriage of its tail, and in its whole economy, it bears a close resemblance to the *Maluri* ; like them also it wanders about in small troops of four or six in number, always keeping within a short distance, and returning towards the close of the day to its accustomed haunts. On the Lower Namoi, where it is very abundant, it is found in all those parts of the plains that are studded with scrubs and clumps of a low shrub-like tree, resembling the Barilla of the coast, through and among which it creeps with astonishing rapidity ; indeed its mode of progression on the ground is such as no description can convey an accurate conception of, and must be seen to be understood ; I cannot perhaps compare it with anything, unless with the motion of an Indian-rubber ball when thrown forcibly along the ground. While stealing from bush to bush, with this rapid movement, its head low and tail perfectly erect, it presents an exceedingly droll appearance. Like many others of its family, it seldom employs its power of flight."

THE BIRDS OF AUSTRALIA.

H. L. White has recently written: "Two pairs (♂ and ♀) from Shark Bay, W.A., and collected by Mr. F. L. Whitlock, appear to agree with three skins from the East Murchison district (also collected by Mr. Whitlock) and with the description of Milligan's *gigantura*, except that the Shark Bay birds may be a little lighter underneath, while the tail of one specimen is 110 mm.—fully $\frac{1}{8}$ of an inch longer than that given, as its chief feature, for *gigantura*. Further east a pair collected by Mr. C. G. Gibson in the region of Kalgoorlie answers Gould's plate of *macrura*, a darker variety of the true *textilis*, while the darkest birds are a pair taken by Capt. S. A. White still further eastward—at the Everard Mountains, which birds are apparently Mathews's *purnelli* from Central Australia. The interesting question arises, What bird is figured by Gould in his plate as *textilis* of which he stated, 'I killed and dissected many examples'? Except for the absence of the dark cheek stripe the picture is suggestive of the eastern form of *A. striata*. However it is not the typical *textilis*."

With the statement that the bird Gould figured was not the typical *textilis* I agree, and I described the bird from New South Wales as

Diaphorillas textilis inexpectatus

writing:

"Differs from *D. t. textilis* in having much less brown in the feathers on the back, fewer striations on the throat, and in having a shorter tail, and from *D. t. modesta* in being very much lighter coloured. Tail 77 mm., typical birds 96 mm."

I continued this as a subspecies of *textilis* in my 1913 "List," but now upon reviewing the whole group I find it very puzzling so to regard it. The true *textilis* are all confined to West Australia, ranging from the Sharks' Bay District to the South-east of West Australia, but these are all similar in detail and differ from the Eastern bird. As so many peculiar forms exist, I have concluded that this must be regarded as a distinct species, which apparently is now *not* abundant on the Lower Namoi, if not altogether extinct in that locality.

I have ranged, not without doubt, under this species the Gawler Range bird discovered by Captain S. A. White as here noted.

Captain S. A. White has written me: "Both Mrs. White and our man, Thos. Ash, told me on several occasions that they had seen a brown skulking bird in the salt bush, and, calling me, showed me where it had disappeared. We spent hours in trying to beat it out without success. It was not till we were on our homeward journey, and we had reached Myall Creek, that we were fortunate enough to procure an adult and two young birds. Walking through the salt bush near the creek or dry watercourse, two brown birds

EASTERN GRASS-WREN.

went scuttling away from under our feet and after searching for some time they were found sitting closely together and quite motionless under a bush. After procuring them it was seen that they were fully fledged young. On making a squeaking noise one of the parent birds answered and at length was drawn out into the open and procured. These birds are so like their surroundings in coloration, are so cunning and such skulkers that it is the greatest difficulty to get a sight of them, and they will almost let you crush them underfoot, before they will betray themselves."

These Captain White recorded as *Amytornis modestus*, but I described them under the name

Diaphorillas textilis myall.

"Differs from *D. t. modesta* (North) in having the under-surface brown (not white) with the shafts white."

After careful examination this bird seems nearest to *D. inexpectatus* and I have ranged it here. It is much more different from the true *D. modestus* or the true *D. textilis*.

The two subspecies will be

Diaphorillas inexpectatus inexpectatus Mathews.

Interior of New South Wales.

Diaphorillas inexpectatus myall Mathews.

Gawler Ranges, South Australia.

Still, note the discontinuous distribution.

Order PASSERIFORMES

Family SYLVIIDÆ.

No. 571.

DIAPHORILLAS PURNELLI.

UNIFORM GRASS-WREN.

(PLATE 472, two lower figures.)

DIAPHORILLAS TEXTILIS PURNELLI Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 99, Sept. 24th, 1914: Mount Benstead, Alice Springs, Central Australia.

Amytis textilis North, Rep. Horn Sci. Exped. Cent. Austr. Zool., p. 81, 1896 (pt.); Kcartland, Victorian Naturalist, Vol. XX., p. 135, 1904 (pt.).

Diaphorillas textilis S. A. White, Trans. Roy. Soc. S. Austr., Vol. XXXVIII., p. 432, 1914.

Diaphorillas textilis purnelli Mathews, Austral Av. Rec., Vol. II., p. 99, 1914; S. A. White, Emu, Vol. XIV., p. 189, 1915; *id.*, Trans. Roy. Soc. South Austr., Vol. XXXIX., p. 754, 1915.

Amytornis textilis Hill, Emu, Vol. XII., pp. 242, 1913; Campbell and Kershaw, *ib.*, p. 276.

Diaphorillas purnelli Mathews, Austral Av. Rec., Vol. III., p. 159, 1918.

Amytis textilis of some authors.

DISTRIBUTION. MacDonnell, Musgrave and Everard Ranges, Central Australia.

Adult male. General colour above rufous-brown, inclining to chestnut on the lower-back, rump, and upper tail-coverts; the feathers on the top of the head, sides of face, hind-neck, sides of neck, and upper-back longitudinally lined with white; upper wing-coverts similar to the lower-back with pale shaft-streaks; inner-webs of flight-quills dark brown with rufous margins; tail-feathers also dark brown with pale edges and obsolete cross-bars; throat and breast pale rufous with white shaft-streaks becoming dusky rufous-brown on the abdomen, sides of body, thighs, and under tail-coverts; axillaries, under wing-coverts and margins of flight-quills below cinnamon-rufous; remainder of quill-lining dark brown; lower aspect of tail similar to its upper-surface. Eyes brown, feet leaden-black, bill blackish. Total length 168 mm.; culmen 12, wing 63, tail 80, tarsus 26. Figured. Collected in the Everard Ranges, South Australia, on the 11th of August, 1914. (Plate 472, left hand figure.)

Adult female. Differs in having a reddish-patch on the sides of the body. Crown of head, sides of face, sides of neck, hind-neck, and upper-back rufous-brown with white shaft-streaks, which are skirted with black on most of the feathers; lower-back, rump, and upper tail-coverts uniform and inclining to chestnut; lesser upper wing-coverts similar to the upper-back, but no white shaft-lines; greater upper wing-coverts

UNIFORM GRASS-WREN.

dark brown with pale shafts and pale fringes to the feathers ; inner webs of flight-quills blackish-brown with rufous margins ; tail-feathers dark brown, slightly fringed with rufous-brown and obsolete dark cross-bars ; the feathers behind the nostrils rufous at the base ; a slightly indicated black moustachial streak ; throat and breast rufous with white shaft-streaks becoming uniform on the abdomen ; sides of body bright chestnut fading to dusky rufous-brown on the lower flanks, thighs, and under tail-coverts ; under wing-coverts rufous ; margins of quills below cinnamon, remainder of quill-lining dark brown ; lower aspect of tail similar to its upper-surface. Eyes light brown, feet slaty-black, bill black, lower base leaden-black. Total length 168 mm. ; culmen 10, wing 64, tail 77, tarsus 26. Figured. Collected at Carminnia Rock-hole, Everard Ranges, South Australia, on the 12th of August, 1914. (Plate 472, lower right hand figure.)

Immature. Resemble the adults in general.

Nest and eggs. Not described.

CAPTAIN S. A. WHITE recorded under the name "*Diaphorillas textilis* (?)" (Western Grass-Wren): "I have my doubts about this bird being *D. textilis*, although it answers to the description of the bird allotted the name by North, in the Horn Expedition. We found them hopping over the stones (in a very lively manner, calling loudly) on the slopes of the MacDonnell Ranges." Later, under my name of *D. textilis purnelli*, he added: "Very numerous amongst the porcupine-grass growing on the foothills of the Musgrave and on the Everard Ranges. Found it very difficult to obtain specimens, for they kept so close to cover that they would allow themselves to be trampled on almost before making off. The female shows a great deal more rufous coloration on the flanks than the male. Their coloration harmonizes most wonderfully with the reddish-brown granite. Just before sundown the male bird will sit upon a bare rock and sing a sweet little twittering song, but at the slightest sound darts like a mouse to cover."

Captain S. A. White has written me under name *D. t. purnelli*: "We first met with this bird in 1914 along the MacDonnell Ranges. These birds were not seen much out in the spinifex ; they seemed to keep to the granite rocks and ranges, seldom took to flight, but invariably depended upon their legs to carry them from one piece of cover to another, if pressed they half extended their wings and glided over an open space on tip-toe, then darted away like a mouse. They have a very pleasing little song which they give forth night and morning ; the only note heard during the day being a short alarm call."

Hill had recorded this species from the MacDonnell Ranges under the name *Amytornis textilis* writing: "Were plentiful both in the gorges and on the porcupine-grass covered rises at the foot of the ranges. Irides light umber, feet and bill dark horn. Crop contents—seeds of acacia, seeds of *Trioda* sp. and sand."

THE BIRDS OF AUSTRALIA.

I diagnosed *Diaphorillas textilis purnelli* as : “ Differs from *D. t. modestus* in having the throat dark buff streaked with white ; the tail is shorter, and the bill is thin and pointed,” and later added “ This was considered true *textilis* by North ; it differs from West Australia birds from Day Dawn and Yalgoo in having a shorter tail, and the throat and under-surfaces much more suffused with reddish.”



H. Grönvold. del

Witherby & Co

MYTISA WHITEI
(RUFIOUS GRASS-WREN).

MYTISA STRIATA.
(STRIATED GRASS-WREN).

DIAPHORILLAS STRIATUS.

STRIATED GRASS-WREN.

(PLATE 470, left hand figures.)*

DASYORNIS STRIATUS Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, March 1840 : Lower Namoi River, New South Wales.

Dasyornis striatus Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, 1840.

Amytis striatus Gould, Birds Austr., pt. III. (Vol. III., pl. 29), June 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 337, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 107, 1883 ; Ramsay, Tab. List Austr. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 23, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 222, 1901 ; Carter, Emu, Vol. III., p. 37, 1903 (N.W. Cape) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 250, 1904 ; Whitlock, Emu, Vol. VIII., p. 180, 1909.

Diaphorillas striata Oberholser, Proc. Acad. Nat. Sci. Philad., 1899, p. 212.

Amytornis striatus Sharpe, Handl. Birds Brit. Mus., Vol. IV., p. 246, 1903 ; Hartert, Nov. Zool., Vol. XII., p. 226, 1905 ; Mathews, Handl. Birds Austral., p. 80, 1908 ; Howe, Emu, Vol. IX., p. 232, 1910 (Vic.) ; Wilson, *ib.*, Vol. XII., p. 36, 1912 (Vic.) ; Chandler, *ib.*, Vol. XIII., p. 41, 1913 (Vic.) ; Howe and Tregellas, *ib.*, Vol. XIV., p. 72, 1914 (Vic.) ; Campbell, *ib.*, Vol. XVIII., p. 81, pl. xvi., 1918.

Diaphorillas striatus howei Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 100, July 13th, 1911 : Kow Plains, Victoria ; *id.*, Nov. Zool., Vol. XVIII., p. 365, 1912.

Diaphorillas howei White, Emu, Vol. XII., p. 179, 1913 (S.A.).

Mytisa striata Mathews, List Birds Austr., p. 232, 1913.

Mytisa striata striata Mathews, *ib.*

Mytisa striata howei Mathews, *ib.*

Adult male. General colour of the upper-surface chestnut-brown with white shaft-lines to the feathers which are bordered with black, including the top of the head, hind-neck, and back, the black borders adjoining the white shaft-lines become obsolete on the rump and upper tail-coverts, where the blackish bases of the feathers show through and give a dark appearance ; lesser upper wing-coverts and base of primary-quills chestnut ; median and greater wing-coverts dark brown with white shaft-lines and pale fringes to the feathers ; flight-quills dark hair-brown with pale edges to the outer webs and buff margins on the inner ones ; tail blackish-brown with obsolete cross-bars and whitish tips and margins to some of the feathers ; the feathers

* The Plate is lettered *Mytisa striata*.

THE BIRDS OF AUSTRALIA.

at the base of the forehead have black hair-like tips ; lores chestnut at the base ; rictal bristles black ; sides of face blackish with white shaft-lines to the feathers ; lower cheeks uniform black ; sides of neck whitish with dark fringes to the feathers like the fore-neck ; chin and throat white ; breast buffy-white becoming fawn-colour on the abdomen, sides of body, thighs, and under tail-coverts ; axillaries and under wing-coverts cinnamon-rufous ; under-surface of flight-quills hair-brown, cinnamon-rufous on the inner margins ; lower aspect of tail similar to its upper-surface but paler. Bill dark brown, eyes brown, feet slate. Total length 170 mm. ; culmen 10, wing 66, tail 87, tarsus 25. Figured. Collected at Gerahmin Mallee, Victoria, on the 15th of September, 1912, and is *Diaphorillis striatus howei*. (Bottom figure.)

Adult female. Differs from the adult male in having a reddish patch on the sides of the body. Crown of head, hind-neck, sides of neck, back, and scapulars chestnut-brown with white shaft-lines to the feathers, which are bordered with black—most conspicuous on the fore-part of the head and becoming absent on the lower-back ; rump and upper tail-coverts uniform and darker than the back ; lesser upper wing-coverts and base of primary-quills chestnut ; bastard-wing, median and greater upper wing-coverts dark brown with grey edges and pale shaft-lines to the feathers ; flight-quills dark brown with pale outer edges and more or less cinnamon-buff on the inner ones ; tail blackish-brown with pale margins and whitish tips to some of the feathers ; rictal bristles black ; lores and upper eyelid cinnamon-rufous ; lower eyelid white ; ear-coverts white with dark fringes to the feathers ; cheeks black ; chin whitish with black hair-like tips to the feathers ; throat, fore-neck, and sides of lower neck dark brown with whitish margins to the feathers which gives a streaked appearance ; breast, abdomen, and sides of body fawn-colour, becoming darker and inclining to rust-brown on the lower flanks, thighs, and under tail-coverts ; axillaries, under wing-coverts and inner margins of quills below cinnamon-rufous, remainder of quill lining blackish-brown ; lower aspect of tail similar to its upper-surface. Bill dark brown, eyes brown, feet light slate. Total length 175 mm. ; culmen 10, wing 65, tail 89, tarsus 25. Figured. Collected at Gerahmin, Mallee, Victoria, on the 9th of September, 1912. (Left figure.)

Immature. Very similar to the adult.

Nest. “ Partially domed, composed of bark fibre and the dried blades or spines of porcupine grass, placed on a foundation of pieces of bark. Placed close to the ground in or under the shelter of a spinefex tussock. Outside measurements $4\frac{1}{2}$ inches by $\frac{3}{4}$ deep.” (North.)

Eggs. “ Clutch two, rather swollen ovals in shape, ground-colour white, well marked with spots of reddish-brown and scattered markings of pale lilac, particularly about the larger end. Surface of shell fine and slightly glossy. The clutch measures 22 mm. by 16.” (H. L. White.)*

Breeding season. After rain, early in the year.

GOULD only wrote a few lines as follows : “ The only specimen I procured of this little bird in a recent state was shot while I was traversing the Lower Namoi ; it appeared to give preference to a loose sandy soil studded with high rank grass, which, growing in tufts, left the interspaces quite bare ; through the natural labyrinth thus formed, the Striated Wren ran with

* In future the nest and eggs will be described by Mr. H. L. White.

STRIATED GRASS-WREN.

amazing rapidity ; and it was only by forcing it to take wing that I succeeded in killing the one I obtained, which on dissection proved to be a male. All the specimens I have seen from New South Wales were in the red state of plumage, which goes far towards proving that this bird is really distinct from *Amytis textilis*. Nothing has yet been ascertained respecting its nidification ; its food, like that of the Textile Wren, consists of insects of various kinds. As might be conjectured from its form, its habits are terrestrial ; and it rarely, if ever, mounts into the air, or flies except among the trees."

North stated that it was rare or extinct at the type locality.

Howe found it in the Victorian Mallee, writing : " While walking about this same patch of porcupine, another note caught our ears, and tracing it to a bunch of grass, I put my foot down ; immediately a bird was heard to utter a cry, and my companion, coming to my aid, secured it ; it was a young *Amytornis*, a few weeks from the nest. Shortly afterwards, Mr. Scarce flushed a bird from a beautifully built nest, placed in the side of a porcupine bush, and containing three fairly fresh eggs. On 11th October, when on our way to Pinaroo, we found the birds very plentiful at No. 8 bore, and two more nests, each containing two eggs, were found. This bird makes wonderful pace as it runs through and around the porcupine ; with the feathers puffed out it resembles a small rat. They possess a rather sweet and warbling song."

Wilson added : " Being of an extremely shy nature and possessed of great running powers, it soon disappears from sight amongst the tussocks. It is, however, very curious, and on hearing a strange noise cautiously mounts some spot of vantage to find out whence it comes."

Chandler also found nests in the same locality.

Captain S. A. White's notes read : " We met with *M. striata howei* in the Mallee, east of the Murray in November, 1911. There was a fair amount of so-called spinifex, porcupine bush (*Trioda irritans*) amongst the scrub. The birds were very shy and it was only after much calling and waiting that specimens could be procured ; the stomachs contained many small seeds as well as the remains of insect life. I next met with this bird a few years later in similar scrub, mallee and porcupine bush, but further north out from Karoonda on the Paringe railway line. Although seen passing from bush to bush with great rapidity, it took some considerable time to procure a specimen, for they move about among the porcupine and low scrub more after the manner of a mouse than the bird. I have never met with this species north of the Murray belts, in fact, have never seen it on the west side of the river, and it does not extend into the vast salt-bush plains of the interior."

THE BIRDS OF AUSTRALIA.

Mr. Edwin Ashby writes: "I have met with this bird in the extensive belt of mallee on the east side of the River Murray, near Karoonda in South Australia. There I have always found it near where mounds of porcupine grass, often called 'spinifex' are growing; usually it shelters in the porcupine grass, moving from clump to clump with a series of rapid hops, indeed so rapid that it is well nigh impossible to get the gun to the shoulder before the bird has taken shelter in the next clump. No amount of kicking the clump of 'spinifex' will disturb the bird.

"The birds can be located on a still day by their low call note which is very similar to that of the *Maluridæ*. I have found their old nests in the prickly mounds of porcupine grass and think they nearly always choose this very protective site."

Mr. G. A. Kearnland has sent me a series of notes which may be here noted under the names he used. "*Amytis striata*. This is certainly the most widely distributed species of the genus, and so wary that a person unfamiliar with their habits might be within gunshot of scores of them without viewing a single specimen. They are found singly or in pairs in spinifex, samphire or salt-bush country, but run and hide on the least alarm. They seldom fly unless forced to do so. Owing to the shortness of their wings they do not range far from their nest or camping place and are quite indifferent to the presence of water. This will be realised when I state that in crossing 740 miles of desert between Brookman Creek and the Fitzroy River (*whitei*) we only obtained water on five or six occasions by sinking wells, and we yet found over thirty nests containing eggs or young of these birds. I collected about a dozen clutches of eggs and a number of skins, but, alas, in vain. We had to abandon all my collections, tools, material, gun, clothing, etc., to escape with our lives. As it was, we had only half a gallon of mud at the bottom of the cask when we sighted the river, and were glad to suck the moisture from that when we saw that a supply was assured in the near future. Two men (Chas. F. Wells and Geo. L. Jones) and ten camels perished. This will give some idea of the habitat of *A. striata*. Of course, scattered birds are found in much better country, as they are to be met with from Northern Victoria (*howei*) to the fringe of the desert of North-west Australia and right across the centre of the continent. Occasionally they will perch on a dry stick or spinifex tussock during the time of sunrise or sunset and carol a very nice song, but at the least alarm they jump to the ground and hide. All the nests I saw were placed *on top* of spinifex tussock and had a very large side opening always facing the east. The nests were built of strippings from the stalks of dead spinifex. The eggs (two in number) were white with light brown markings, long oval in

STRIATED GRASS-WREN.

shape. With regard to *A. goyderi* I am decidedly sceptical. Where the former was obtained I saw nothing but *striata*."

In the *Emu*, Vol. XVIII., pt. 2, a plate was given of *Amytornis striata*, and p. 81 Campbell made some remarks "on the geographic range and colour variation of this species." "The dullest (hazel) phase appears to be the extreme eastern birds—Mallee (Victoria) and New South Wales (type locality)—while the richer coloured (bright auburn or Sanford's brown) phase extends northward, and through the great interior to western West Australia. Of the extreme eastern birds, the true *striata* might be united with *howei* (Mathews) which is stated to differ from the former in 'being red-brown above and in having the white shaft-streaks bordered by a line of black . . .'" "A pair of *howei*, the subject of the coloured plate." "Gould's plate more assimilates the richer coloured interior form." [This is very contradictory.] "There is less variety among the rich auburn-headed and mantled birds, which apparently come under one group, namely:—

rufa (Campbell and Kershaw), interior of Northern Territory.

oweni (Mathews), interior of Western Australia.

whitei (Mathews), Mid-west Australia.

"Therefore, we can, in *Amytornis striata*, recognise generally two forms or races—*striata* proper (Eastern) and *whitei*, the more auburn phase (Interior and Western). Nestlings of the two forms can likewise be separated.

Dimensions in mm. :

Eastern :	Length 160-170	wing 61	tail 80-85	tarsus 23	culmen 10
Central	„ 165	„ 62	„ 89	„ 22	„ 12
Western	„ 165	„ 60	„ 80	„ 22	„ 13

"*Amytornis merrotsyi* Mellor from South Australia appears to be a robust variety of *striata*—probably a distinct species; it is not a subspecies of *textilis*, as indicated by Mathews in his 1913 'List,' p. 232."

Mellor's diagnosis states that *merrotsyi* differs from *striata* by the large amount of rusty-chestnut on the head and mantle, the absence of black beneath the eye and on the ear-coverts, and by its much shorter tail. The feet and legs are larger and shorter. Mellor's measurements contradict this if compared with the above; given in hundreds of an inch and here reduced to mm., *merrotsyi* ♂ Length 150 mm.; wing 66; tail 82; tarsus 28; culmen 15. The much longer bill and longer stouter legs are noteworthy. Bill dark horn is not right.

When I received specimens from the Victorian Mallee I described

Diaphorillas striatus howei.

"Differs from *D. striatus* Gould from West Australia (which is believed to be the same species as that found in New South Wales) in being red-brown

THE BIRDS OF AUSTRALIA.

above and in having the white shaft-streaks bordered by a line of black. Size similar to that of *D. striatus*. Kow Plains, Victoria."

As I am now separating the West Australian birds as a separate species there remains to *striatus* two subspecies only.

Diaphorillas striatus striatus (Gould).

Interior of New South Wales.

Diaphorillas striatus howei Mathews.

Victorian Mallee.

DIAPHORILLAS MERROTSYI.

CHESTNUT-MANTLED GRASS-WREN.

(PLATE 469, bottom left hand figure.)

AMYTORNIS MERROTSYI Mellor, Emu, Vol. XII., pt. 3, p. 166, Jan. 1st, 1913: Lake Torrens, South Australia.

Amytornis merrotsyi Mellor, Emu, Vol. XII., pt. 3, p. 166, Jan. 1st, 1913.

Diaphorillas textilis merrotsyi Mathews, List Birds Austr., p. 232, 1913.

I am inclined to include Mellor's bird, from the specimen he gave me and which I have figured. It is in a bad state, so I cannot give a decided opinion.

Adult female. General colour of the upper-surface chestnut-rufous with white shaft-lines to the feathers, many of which are bordered with black, including the top of the head, hind-neck, back, scapulars and wings; sides of face grey, streaked with white; lower back and rump greyish smoke-brown with dusky bases to the feathers; upper tail-coverts rufous with pale shaft-lines like the lesser upper wing-coverts; bastard-wing, median and greater series dark brown with white shaft-lines and olive-grey margins; flight-quills hair-brown—becoming darker on the innermost secondaries—rufous at the base, olive on the outer margins of the primaries and ferruginous, or whitish shaft-streaks; tail dark brown with pale margins and obsolete cross-bars to the feathers; chin cream-white with hair-like tips to the feathers; fore-neck and breast pale buff, more or less tinged with chestnut; abdomen fawn colour; thighs rust-brown; flanks and under tail-coverts greyish-brown; under wing-coverts and inner margins of flight-quills below bright cinnamon-rufous; remainder of quill-lining hair-brown; lower aspect of tail similar to its upper-surface but paler. Eyes dark brown, feet and bill dark horn. Wing 60 mm., culmen 10, tail 68 (damaged = 82), tarsus 27. Figured. Collected 6 miles east of Yudanamutan (Lake Torrens), South Australia, on the 1st of September, 1912, and is the co-type of *Amytornis merrotsyi* Mellor.

Adult male. Differs in having the rufous on the mantle darker, with less rufous on the wing-coverts.

Nest. "Domed and loosely constructed of dry spinifex grass, lined with rabbits' fur. Built in spinifex grass bush." (Mellor.)

CHESTNUT-MANTLED GRASS-WREN.

Eggs. "Clutch two. Pearly white, uniformly dotted and marked with various sized, irregularly-shaped splashes of reddish-brown, the markings denser at the extreme larger end. 88 mm. by 60." (*ib.*)

Breeding season. September.

MR. J. M. MELLOR wrote: "*Amytornis merrotsyi* (Chestnut-mantled Grass-Wren). Specimens of a new species of Grass-Wren (*Amytornis*) have been forwarded to me by Mr. A. L. Merrotsy, who collected them in the spinifex or porcupine grass country to the north-east of Lake Torrens. The male, female, and eggs have all been secured. From its striped appearance it is nearly related to the Striated Grass-Wren (*A. striatus*). The most conspicuous character, apart from the striation, is a light rufous or chestnut coloration of the head and mantle. The bird can be at once distinguished from the Striated Grass-Wren by the large amount of rusty-chestnut on the head and mantle, the absence of black beneath the eye and on the ear-coverts, and by its much shorter tail. The feet and legs are larger and stouter."

DIAPHORILLAS WHITEI.

RUFOUS GRASS-WREN.

(PLATE 470, right hand figures.)*

AMYTORNIS WHITEI Mathews, Bull. Brit. Orn. Club, Vol. XXV., p. 34, Jan. 1st, 1910 :
Coongan River, Mid-west Australia.

Amytis striata Whitlock, Emu, Vol. VIII., p. 180, 1909 : Coongan River.

Amytornis whitei Mathews, Bull. Brit. Orn. Club, Vol. XXV., p. 34, 1910.

Amytornis striatus Whitlock, Emu, Vol. IX., p. 204, 1910 : East Murchison.

Amytornis striatus oweni Mathews, Bull. Brit. Orn. Club, Vol. XXVII., p. 48, Jan. 23rd,
1911 : East Murchison, West Australia.

Diaphorillas striatus oweni Mathews, Nov. Zool., Vol. XVIII., p. 365, 1912.

Diaphorillas striatus whitei Mathews, *ib.*, p. 366.

Amytornis rufa Hill, Emu, Vol. XII., pp. 248, 249, 1913 : *nomen nudum* ; Campbell and
Kershaw, *ib.*, p. 274-6, April 1st, 1913 : Interior of Northern Territory.

Mytisa striata rufa Mathews, List Birds Austr., p. 232, 1913.

Mytisa striata oweni Mathews, *ib.* ; White, Emu, Vol. XV., p. 36, 1915.

Mytisa striata whitei Mathews, *ib.*

Diaphorillas striata rufa Mathews, Austral Av. Rec., Vol. II., pp. 9 and 136, 1913, 1915.

Amytornis striatus (pt.) Campbell, Emu, Vol. XVIII., p. 81, 1918 ; (pt.) Kearland and
others.

DISTRIBUTION. Central-west Australia and Interior of Northern Territory.

Adult male. Fore-part of head and sides of crown blackish with white shaft-streaks like the feathers below and behind the eye ; hinder-part of head, hind-neck, sides of neck and mantle bright chestnut with white shaft-lines to the feathers ; back, rump, and upper tail-coverts uniform bright chestnut ; upper wing-coverts and some of the innermost secondaries chestnut with white shaft-lines ; bastard-wing and some of the greater coverts edged and centred with white ; base of primary-quills chestnut ; flight-quills dark hair-brown with pale outer edges and more or less rufous on the inner ones ; tail dark brown with fulvous margins to the feathers, the outermost pair margined and tipped with whitish ; lores and upper eyelid cinnamon-rufous ; rectal bristles black ; cheeks black ; chin and throat whitish ; breast, abdomen, sides of body, thighs and under tail-coverts pale fawn-colour, the breast and sides of breast indistinctly streaked with grey, the blackish bases to the feathers sometimes show through, which gives a blotched appearance ;

* The plate is lettered *Mytisa whitei*.

RUFOUS GRASS-WREN.

axillaries, under wing-coverts and inner margins of quills below cinnamon-rufous ; remainder of quill-lining dark brown ; lower aspect of tail similar to its upper-surface. Bill very dark horn, eyes hazel, feet and legs grey-brown. Total length 170 mm. ; culmen 10, wing 63, tail 85, tarsus 25. Figured. Collected at Bore Well, East Murchison, West Australia, on the 7th of September, 1909, and is the type of *Amytornis striatus oweni*. (Top figure.)

Adult female. Differs from the adult male in having a reddish patch on the sides of the body. General colour of the upper-surface including the crown of the head, back, upper tail-coverts, scapulars, and wings bright chestnut ; the feathers on the top of the head, hind-neck, sides of neck, and upper-back have white shaft-lines which are bordered with black, which disappears on the middle and lower back ; lesser upper wing-coverts, inner greater-coverts, margins of innermost secondaries, primary-coverts and base of primaries, chestnut with white shaft-lines to some of the feathers ; bastard-wing, median, and greater-coverts dark brown with white shaft-lines and pale edges to some of the feathers ; flight-quills hair-brown with rufous or grey edges on the outer webs and rufous towards the base of the inner ones ; tail blackish-brown with pale margins and obsolete cross-bars to the feathers ; rectal bristles black ; lores and upper eyelid cinnamon ; the short feathers on the sides of face white fringed on the margins with black ; a short line on the fore-cheeks also black ; chin and throat white ; breast, abdomen, flanks and under tail-coverts pale fawn colour with blackish bases to the feathers ; a patch of pale chestnut on the sides of the body ; under wing-coverts cinnamon-rufous like the inner margins of the flight-quills below ; lower aspect of tail similar to its upper-surface. Bill very dark horn, base paler ; eyes hazel, feet and legs grey-brown. Total length 150 mm. ; culmen 10, wing 58, tarsus 24. Figured. Collected at Bore Well, East Murchison, on the 12th of September, 1909. (Right-hand figure.)

Immature. "Much duller in colour than adults, snuff-brown rather than ferruginous-brown." (Whitlock.)

Eggs. Clutch, three eggs, oval in shape, surface of shell fine, smooth and slightly glossy ; ground-colour white, with the very faintest tinge of pinkish-buff, finely spotted and speckled all over, but particularly at the larger end, where a well marked zone is formed, with pale reddish-brown, umber, and dull slate, the latter appearing as if beneath the surface of the shell. The clutch measures 19-22 mm. by 15-16.

Nest. Is of the domed type and globular in shape, outwardly constructed of dried spinifex (*Triodia*) stems and fine grasses. The interior is neatly lined with buff-coloured vegetable down, but the cavity containing the eggs is small in comparison with the bulk of the nest. It was difficult to tell the top from the bottom of the nest when it was removed from the growth of spinifex (*oweni*).

Eggs. Clutch of two eggs, stout ovals in shape, shell smooth and without gloss ; colour white, marked all over, but particularly at the larger end, with small irregular shaped brownish-red dots and splashes. Clutch measures 22-23 mm. by 16.

Nest. Cup-shaped, composed of dried spinifex leaves, and lined with kangaroo fur, the walls of the nest being thin and much interwoven with growing spinifex. Inside measurements, $2\frac{1}{2}$ inches wide by $1\frac{1}{2}$ inches deep. Situation, a natural cavity in a clump of spinifex growing on the side of a small gully. Size of clump, 3 feet in diameter by 30 inches in height (*whitei*).

WHITLOCK, recording the Birds on the Pilbarra Goldfield, wrote : "Very rare and local in the extreme. I only met with it in two localities, in a particularly ferruginous range of hills, and I am not sure that in the second

THE BIRDS OF AUSTRALIA.

case the bird I saw more than once was not a solitary male. I shot one pair for identification. It is a wary but not secretive species like its congener, *A. gigantura* (Milligan). The individuals I met with haunted a series of very stony gullies, with very little scrub, but where the spinifex was growing in innumerable large clumps. I was attracted by the pleasing song, which resembles that of a *Malurus*, but is fuller, more musical, and more sustained. I spent many hours searching for a nest, but all in vain, and latterly the bird or birds I was watching seemed to disappear altogether. As the two specimens I shot do not agree *in toto* with Gould's description I send them for inspection."

Whitlock then recorded results of collecting on the East Murchison and gave a good account of finding the nests of this species. "The Striated Grass-Wren, which I had met with in the north-west of this State, was destined to give me much trouble, and at the same time keen delight. I had very little to guide me in estimating the probable nesting time. . . . I resolved to shoot a pair and examine the state of their organs. . . . I was too early. However, I was on the spot, and resolved to learn as much as I could of the habits of the birds and, if necessary, return again at a later period. In the breeding season at any rate, this Grass-Wren is much easier to find than *Amytornis gigantura*. The male has rather a pleasing song, and on calm, sunny days he will perch at a height of 3 or 4 feet and pour it forth. He even keeps up the performance for ten minutes at a time if undisturbed, and in this respect he resembles a *Calamanthus*, another rather secretive bird. The common call note is a clear, liquid and musical 'Tū-tū-tū,' and this is frequently responded to by other males (and possibly his own female) within earshot. These notes are incorporated in the song, and are followed by other more rippling notes, which again are followed by further sounds difficult to describe on paper. The whole effect is distinctly pleasing, and in the semi-desert country inhabited by these Grass-Wrens gives life to otherwise rather dreary surroundings. Indeed, were it not for the bird life on these spinifex plains, silence would absolutely prevail. During a month's constant tramping I never saw a kangaroo or other marsupial. Lizards were not numerous, snakes I never saw at all, and with the exception of the usual bush flies and two or three species of beetle, insect life was not very apparent. The alarm note, or warning note, is faint and high-pitched, but when an individual is suddenly disturbed from a tussock of spinifex at one's feet it dashes off—a streak of brown—with a shrill shriek, not unlike the effect produced by rapidly drawing one's finger over the highest octave of the piano, in an upward direction. . . . I had the luck to catch a young one. . . . was much duller in colour than adults; snuff-brown rather than

RUFIOUS GRASS-WREN.

ferruginous-brown. The striation on the throat and breast were visible. The under parts were greyer, but palest on throat and abdomen."

Mr. Tom Carter's notes read: "Striated Grass-Wrens were only observed by me on two occasions, and at the same place each time. While 'exploring' a patch of then unknown country, about the centre of the North-west Cape peninsula, in order mainly to locate some wonderful trees growing there, of which the natives had often told me (they proved to be Palm Trees, like Cabbage Palms) in June, 1898, I noticed some Wrens, with tails erect, darting rapidly to and fro in some 'bush' spinifex on a stony hill. Our horses were wanting water badly, so we could not remain long, but I had a snapshot at one bird, which only resulted in its losing two tail feathers, these however being different to any feathers previously seen, I kept them, and determined to visit the locality again. . . . As it was a very 'dry' part, I was not able to do this until two years afterwards, viz., 1900, the record wet year. Arriving there May 21st, at exactly the same stony hill, my native boy and self came upon a party of four of the Wrens, two adults and two young, that had *very* recently left the nest, in fact I think we frightened them from it. It was built on the top of a bunch of *soft* spinifex (without prickles) and was bulky, made of leaves and strips of bark off bushes (no trees anywhere within miles) and grass, lined with a sort of wild cotton. The top was *open* or only partly domed. The material was very loosely put together. One young bird was captured alive, after a long chase through the spinifex. The male bird was shot, as it was *perching* quietly in a wild flybush, apparently much concerned at the upsetting of his family. My native boy pointed it out to me, or I should have overlooked it."

The only notes Hill gave in connection with *A. rufa* read: "Lat. 21° 26' 33" S., long. 8 hrs. 49 min. 52 sec. E. In some very stunted box (*Eucalyptus*) and spinifex country, 20 miles west of the camp, we met with *Amytornis rufa* for the first time (June 14th). . . . We travelled 50 miles further west without seeing any birds or animals excepting a few *Amytornis rufa*. . . . In the vicinity of Lat. 19° S. *A. rufa* was identified. . . . was not seen north of Lat. 19° S."

He gives the measurements of two specimens collected near Camp 4 on June 14th.

Campbell and Kershaw named this bird and as their type give the measurements of the above bird, but give the data "3.7.11. Lat. 19° 27", about 160 miles north of N.T. Survey Camp C IV." and as co-type give the second bird with data "2.6.11. Lander Creek."

It may be immaterial which data are correct, but the discrepancy is noteworthy; and I wrote down that given by Campbell and Kershaw in

THE BIRDS OF AUSTRALIA.

connection with my examination of the types. It will be noted that the date given for the type is the furthest north Hill said that he saw it, while the date given for the co-type is twelve days earlier than Hill said he met with it.

My notes, written from examination of the type when in Australia, read: "The type of *D. striata rufa* (Campbell and Kershaw) Lat. 19° 27" about 160 miles north of Survey Camp IV., July 3rd, 1911, differs from *D. s. howei* in having the upper-surface with the feathers very rufous, and the white shaft-streaks not bordered with black, except some of the feathers of the forehead. It is more like '*oweni*' (Mathews)."

The co-type (spirit specimen) collected at Lander Creek, Northern Territory, June 2nd, 1911, has the white shaft-streaks narrowly fringed with black.

My description of *Amytornis whitei* reads: "Differs from *A. striatus* in being larger in all its admeasurements, the bill being especially large. It is also redder on the back and underparts," while I wrote of *Amytornis striatus oweni* that it "Differs from *A. s. striatus* (Gould) in having the upper-surface bright chestnut instead of rusty-brown, and the white shaft-streaks almost devoid of black edgings, which form such a marked character in *A. s. striatus*."

The following three subspecies are recognisable :

Diaphorillas whitei whitei Mathews.

Coongan River, Mid-west Australia.

Diaphorillas whitei oweni Mathews.

East Murchison, West Australia.

Diaphorillas whitei rufa Campbell.

Interior of Northern Territory.

GENUS—EYRAMYTIS.

EYRAMYTIS Mathews, Nov. Zool., Vol. XVIII., p. 366,

Jan. 31st, 1912. Type (by original designation) *Amytis goyderi* Gould.

SMALL Grass-Wrens with extraordinary parrot-bills, short wings and long tail, long legs and stout feet.

The bill is peculiar, shorter than the head, culmen very arched; less lateral compression than usual in this group, but depth more than two-thirds the length; the lower mandible very stout, nearly as deep as upper; the tip sharp and spatulate; the cutting edge of upper mandible slightly sinuate; nasal groove small and placed high up in mandible, the linear nostrils nearly obscured by frontal feathering; basal expansion little.

The wing is very rounded; the first primary about half the length of the third, then from the third to the eighth subequal and longest, not much exceeding the secondaries which are slightly longer than the second primary.

The tail is long and wedge-shaped, the feathers ten in number.

The legs are long and distinctly scutellate, six scutes being seen in front, the hind part bilaminate; the feet are stout, the middle toe longest, the inner slightly shorter than the outer, but with claw less than the middle toe alone; the hind-toe short and only equal to outer toe, but claw longer.

This extraordinary form is well characterised by its peculiar bill, and peculiarly enough has not been seen since the original pair were procured, which consequently remain in the British Museum (Natural History) Collection unique.

Order PASSERIFORMES.

No. 574.

Family SYLVIIDÆ.

EYRAMYTIS GOYDERI.

LAKE EYRE GRASS-WREN.

(PLATE 471.)

AMYTIS GOYDERI Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. XVI., p. 286, Oct. 1st, 1875 :
Lake Eyre, South Australia.

Amytis goyderi Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. XVI., p. 286, 1875 ; *id.*, Birds
New Guinea, pt. II. (Vol. 3, pl. 8), Jan. 1st, 1876 ; Ramsay, Proc. Linn. Soc. N.S.W.,
Vol. II., p. 184, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VII., p. 109, 1883 ;
Ramsay, Tab. List Aust. Birds, p. 8, 1888 ; Hall, Key Birds Austr., p. 23, 1899 ;
Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 223, 1901 ; Keartland, Vict. Nat.,
Vol. XX., p. 137, 1904.

Amytornis goyderi Sharpe, Handl. Birds Brit. Mus., Vol. IV., p. 246, 1903 ; Mathews, Handl.
Birds Austral., p. 80, 1908.

Diaphorillas goyderi Oberholser, Proc. Acad. Nat. Sci. Philad., 1899, p. 212 ; Mathews,
Nov. Zool., Vol. XVIII., p. 366, 1912.

Eyramytis goyderi Mathews, List Birds Austr., p. 233, 1913.

DISTRIBUTION. Near Lake Eyre, South Australia.

Adult (female ?). General colour of the upper-surface cinnamon-brown with white shaft-
lines to the feathers, including the top of the head, sides of face, sides of neck, hind-
neck, upper-back, scapulars and upper wing-coverts ; flight-quills light hair-brown,
paler on the shafts and margins ; lower back, rump, and upper tail-coverts rather
darker in colour and uniform in contrast to the upper-back ; tail-feathers, which
are much abraded, are similar in colour to the flight-quills ; rectal bristles black
and few in number ; the feathers on the lower cheeks are dark brown with white
shaft-lines ; the feathers on the chin are white in colour but bristly in texture ;
throat, breast and middle of abdomen cream-white ; sides of body chestnut becoming
paler and inclining to cinnamon-buff on the thighs, under tail-coverts and under
wing-coverts ; under-surface of flight-quills hair-brown with buff margins ; lower
aspect of tail similar to its upper-surface but rather darker. Total length 147 mm. ;
culmen 10, wing 54, tail 72, tarsus 26. Figured. Collected at Macumbra, Central
Australia (27° 41'–23"). The adult female seems to have the reddish patch on the
sides of the body.

Adult (male ?). General colour of the upper-parts cinnamon-rufous with white streaks
to the feathers, including the top of the head, hind-neck, sides of face, sides of neck,
back, scapulars, and upper wing-coverts ; major-coverts, primary-coverts, and
flight-quills hair-brown with pale shafts and pale margins ; tail-feathers dark brown



H. Grönvold. del.

EYRAMYTIS GOYDERI.
(LAKE EYRE GRASS-WREN).

Witherby & Co

LAKE EYRE GRASS-WREN.

with obsolete cross-bars and buff, or whitish margins; a small tuft of bristles in front of the eye, which are white at the base and black at the tips; the feathers on the lower cheeks black with white shafts; throat and breast cream-white; sides of body, thighs, abdomen and under tail-coverts pale cinnamon-buff; under wing-coverts and margins of flight-quills below cinnamon-rufous; remainder of quill-lining hair-brown; lower aspect of tail similar to its upper-surface but rather paler and the shafts of the feathers inclining to white towards the base. Total length 145 mm.; culmen 10, wing 57, tail 72, tarsus 24. Collected at the same place as the other. These are the only two known to me.

Nest and eggs not described.

Nothing is known of its life-history.

THE unique specimens bear a label "*Amytis*? Macumbra. Lat. 27° 41' 23"."

It has not since been met with, though sometimes records have been given which later proved to refer to another bird.

GENUS—MAGNAMYTIS.

MAGNAMYTIS Mathews, Nov. Zool., Vol.

XVIII., p. 366, Jan. 31st, 1912. Type

(by original designation) *Amytornis woodwardi* Hartert.

LARGEST Grass-Wrens of strikingly distinct coloration with flat heads, short stout bills, long rounded wing, long wedge tail of ten broad feathers, and long strong legs and feet.

The bill is short, a little more than half the length of the head, the culmen strongly arched, the tip distinctly hooked, the lower mandible stout, the depth of bill at base about one-third the length ; six prominent rictal bristles can be counted but no nasal bristles, though frontal feathers encroach on nasal groove but do not reach the nostrils ; the groove is more than one-third the length of the bill, and the linear nostrils show a swollen operculum, the culmen is keeled and laterally compressed.

The wing has the primaries from the fourth to the tenth and the secondaries subequal, the first only about half the length of the fourth, and the second and third comparatively equally longer.

The tail is strongly wedge-shaped of ten broad feathers.

The feet are strong, the tarsus strongly scutellate in front, seven scutes being clearly counted, the hind portion bilaminate.

The toes are stout, the middle toe and claw longest, a little longer than the hind-toe and claw, the latter claw longest ; the inner and outer toes subequal, claws small, and inner toe and claw about equal to the middle toe alone.

This delightful evolution of the Grass-Wren group is restricted to northern tropical Australia, and in the very short range three distinct species are already known.

Key to the Species.

Throat black with white shaft-streaks	<i>M. housei.</i>
Throat white	
Larger. Lores not red	<i>M. woodwardi.</i>
Smaller. Lores red	<i>M. dorotheæ.</i>



H. Grönvold. del

Witherby & Co

MAGNAMYTIS DOROTHEÆ.

(BLACK & WHITE GRASS-WREN).

DIAPHORILLAS PRUNELLI.

(UNIFORM GRASS-WREN).

MAGNAMYTIS DOROTHEÆ.

BLACK AND WHITE GRASS-WREN.

(PLATE 472, top figure.)

MAGNAMYTIS WOODWARDI DOROTHEÆ Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 99, Sept. 24th, 1914 : MacArthur River, Gulf of Carpentaria, Northern Territory.

Magnamytis woodwardi dorotheæ Mathews, Austral. Av. Rec., Vol. II., pt. 5, p. 99, 1914.

Amytornis woodwardi (?) Hill, Emu, Vol. XII., p. 258, 1913 ; Barnard, *ib.*, Vol. XIII., p. 188, 1914 ; *id.*, *ib.*, Vol. XIV., p. 45, 1914 ; H. L. White, *ib.*, p. 58.

Magnamytis dorotheæ Mathews, Emu, Vol. XVI., p. 183, 1917.

DISTRIBUTION. MacArthur River, Gulf of Carpentaria, Eastern Northern Territory.

Adult Male. Fore part of head and sides of face black with white shaft-lines to the feathers ; hinder crown, sides of neck, hind-neck, and upper back chestnut with white central streaks to the feathers, becoming uniform chestnut on the lower back, rump, and upper tail-coverts ; lesser upper wing-coverts similar to the back ; median and greater coverts broadly centred with black, lined with white, and margined with chestnut like the innermost secondaries ; flight-quills blackish-brown narrowly fringed with pale rufous on the outer webs and more broadly on the inner ones ; tail-feathers blackish more or less fringed with rufous ; rectal bristles black and directed laterally ; a streak from the lores to above the eye rufous ; a broad black moustachial streak ; chin, throat, and middle of breast white ; sides of body, abdomen, thighs, and under tail-coverts cinnamon ; under wing-coverts and margins of quills below pale rufous, remainder of quill-lining dark brown ; lower aspect of tail paler than its upper-surface, inclining to rufous, and with whitish shafts. Eyes rich brown, feet greyish-brown, bill dark brown, gape and base of lower mandible steel-blue. Total length 170 mm. ; culmen 12, wing 66, tail 85, tarsus 24. Figured. Collected on the MacArthur River, Northern Territory, on the 24th of September, 1919.

The Sexes are alike.

Nest. A bulky dome-shaped structure (in shape much like a Finch's), composed of the dry seed stems of spinifex and dry stringy-bark (eucalypt) leaves, lined with soft dead leaves of spinifex, the whole structure being well bedded into the top of a bunch of spinifex.

Eggs. Clutch three. White with a faint pinkish shade marking scattered all over the surface, but more numerous at the larger end, being of brownish-red and mauve. 19-21 mm. by 15.

Breeding-season. January (MacArthur River, Northern Territory).

THE first note of this species seems to be the record by Hill : "*Amytornis woodwardi* (?) (White-chested Grass-Wren). A species of *Amytornis* is fairly

THE BIRDS OF AUSTRALIA.

numerous amongst the porcupine grass and rocks in the ranges near Borroloola, but I was unable to secure specimens, although I made several attempts to do so. Several nests, probably referable to this species, were found, all of which were of the same type—namely, covered in, rather closely woven structures, resting on the top of porcupine grass. *Malurus dulcis* inhabits the same class of country.”

Then Barnard gave an account of his search for this bird, which resulted in the collection on the MacArthur of the specimens I named as a distinct subspecies, writing

Magnamytis woodwardi dorotheæ.

“Differs from *M. w. woodwardi* in its much smaller size and in lacking the black feathers on the head, the head feathers having only a narrow black line on each side of the white shaft. The co-type of *M. woodwardi* measures

Culmen 15 wing 78 tail 103 tarsus 26

M. w. dorotheæ „ 12 „ 62 „ 86 „ 23

“Type from the MacArthur River, Gulf of Carpentaria, Sep. 24, 1913.”

Barnard’s note published reads: “*Amytornis woodwardi*. These birds are found in high sandstone country, and are very shy. They do not wander far from the rocks, into which they dart when disturbed. . . . A further long search revealed the nest and eggs. The nest is placed on the top of a bunch of spinifex and much resembles that of the Masked Grass-Finch. Noted as the foster parent of *Cacomantis variolosus*.”

The nest and eggs were then described by Mr. H. L. White.

I then recorded the fact of its specific rank as follows: “Recently, reconsideration of this group has convinced me that the bird is specifically distinct, though it is certainly allied to *M. woodwardi*, and is referable to the genus *Magnamytis*. Thus, it agrees in bill characters, wing formula, feet and tail with that genus, and differs from *Diaphorillas* in the bill structure, though approaching in its small size the latter genus. In *M. woodwardi* the feathers of the sides of the lower breast are like those of the top of the head, white centres and black edges; these continue across the lower breast, fading into the deep red-brown of the abdomen. In *M. dorotheæ* these black-edged feathers are entirely missing, the sides of the breast agreeing in coloration with the abdomen, which is very pale buff. The mantle feathers are reddish-brown, not black, with white centres, while the secondaries show a broad reddish margin which is only seen as a very narrow line in *M. woodwardi*. Further, the inner primaries of *M. dorotheæ* show the inner edges to be reddish, whereas this is missing in *M. woodwardi*. The accumulation of all these differences compels the specific distinction of *M. dorotheæ*.”



H. Grönvold. del

MAGNAMYTIS WOODWARDI.
(WHITE-THROATED GRASS-WREN).

Witherby & Co

MAGNAMYTIS WOODWARDI.

WHITE-THROATED GRASS-WREN.

(PLATE 473.)

AMYTORNIS WOODWARDI Hartert, Bull. Brit. Orn. Club, Vol. XVI., p. 30, Nov. 29th, 1905 :
South Alligator River (Arnhem Land), Northern Territory.

Amytornis housei (not of Milligan, 1902) Hartert, Nov. Zool., Vol. XII., p. 225, 1905.

Amytornis woodwardi Hartert, Bull. Brit. Orn. Club, Vol. XVI., p. 30, 1905 ; *id.*, Nov. Zool., Vol. XIII., p. 754, pl. 1, fig. 1, 1906 ; Mathews, Handl. Birds Austral., p. 80, 1908.

Diaphorillas woodwardi Mathews, Nov. Zool., Vol. XVIII., p. 366, 1912.

Magnamytis woodwardi Mathews, List Birds Austr., p. 223, 1913.

DISTRIBUTION. South Alligator River, Northern Territory.

Adult male. Crown of head, sides of face, sides of neck, sides of breast, hind-neck, and mantle black with white shaft-lines ; lower back, rump and upper tail-coverts dark chestnut, with shaft-streaks to some of the feathers ; upper wing-coverts black, streaked with white, and fringed with chestnut ; flight-quills blackish-brown with traces of obsolete cross-bars ; tail blackish, also showing obsolete cross-bars ; rectal bristles black and directed laterally ; a broad black moustachial streak ; chin, throat, fore-neck and middle of breasts pure white ; abdomen and sides of the body cinnamon-rufous becoming dark chestnut on the lower flanks, thighs, and under tail-coverts ; under wing-coverts cinnamon-rufous ; under-surface of flight-quills dark brown ; lower aspect of tail similar to its upper-surface. Eyes and feet brown. Total length 210 mm. ; culmen 15, wing 78, tail 103, tarsus 26. Figured. Collected on the South Alligator River, Northern Territory, on the 10th of August, 1903.

Adult female. Top of head, hind-neck, side of face, sides of neck, and mantle black with white shaft-lines ; back, rump, and upper tail-coverts dark chestnut, some of the last longitudinally centred with black ; upper wing-coverts similar to the upper back ; flight-quills dull blackish-brown, the innermost secondaries narrowly fringed with rufous ; tail-feathers black, some of the feathers fringed with rufous ; rectal bristles black and directed laterally ; a black moustachial streak ; chin, throat, and fore-neck pure white ; sides and middle of breast black, broadly streaked with white ; abdomen, sides of body, thighs, under tail-coverts and under wing-coverts deeply coloured chestnut ; under-surface of flight-quills dark brown ; lower aspect of tail similar to its upper-surface, but paler. Eyes and feet brown. Total length 210 mm. ; culmen 13, wing 72, tail 97, tarsus 25. Figured. Collected on the South Alligator River, Northern Territory, on the 9th of August, 1903.

THE BIRDS OF AUSTRALIA.

The female differs from the male in having the abdomen chestnut, not cinnamon-rufous.

Nest and eggs not described. Those described by Mr. H. L. White, *Emu*, Vol. XIV., p. 58, 1914, are those of another species, the next.

WHEN Hartert met with this magnificent new species he wrote: "16 specimens from 10 miles east of South Alligator River, July and August, 1903. Of these 15 (*sic*) birds, 7 are marked as males, which have all lighter, more cinnamon-chestnut abdomina, 7 as females, which have all the abdomen darker, of a deep chestnut, while one with a light abdomen is marked 'female,' and one with a dark chestnut abdomen 'male.' I have, therefore, no hesitation in assuming that these last two birds are erroneously sexed, and that the male has a lighter, more cinnamon, the female a darker, chestnut abdomen. '♀,' but abdomen pale and therefore a male, shot in the granite ranges near the head of the South Alligator River, 20.v.1903. 'Runs very fast and hides under rocks.' Although I have not been able to compare the type specimen, I believe this fine bird to be *A. housei*."

The confusion of a white-throated with a black-throated bird was pointed out, and Dr. Hartert named the present species and figured it in the *Nov. Zool.*, Vol. XIII., p. 754, pl. 1, fig. 1, 1906, which figure may be contrasted with the one of *A. housei* given in the *Emu*, Vol. IV., pl. XIII., 1905.

It does not appear to have since been met with, as the bird determined as *A. woodwardi* from the eastern part of the Northern Territory proves to be a distinct species, just treated of as *M. dorotheae*, q.v. In this latter species the sexes are alike. I therefore designate Dr. Hartert's type of *Amytornis woodwardi* as equal to the bird I have described as a male; and name the bird I have described as a female above as *MAGNAMYTIS ALLIGATOR*, *nomen nov.*



H. Grönvold. del.

Witherby & Co.

$\frac{2}{10}$

AMYTORNIS HOUSEI.
(BLACK GRASS - WREN).

MAGNAMYTIS HOUSEI.

BLACK GRASS-WREN.

(PLATE 474.)*

AMYTIS HOUSEI Milligan, Rep. Expl. N.W. Kimberley, pp. 52-58, 1902 (after May 12th and before October) : North-west Kimberley, North-west Australia.

Amytis housei Milligan, Rep. Expl. N.W. Kimberley, p. 58, 1902 ; Emu, Vol. II., p. 114, 1902 ; *ib.*, Vol. IV., pl. 184, p. XIII, 1905 ; Kearsland, Vict. Nat., Vol. XX., p. 138, 1904 ; Hall, Key Birds Austr., 2nd ed., p. 111, 1906.

Amytornis housei Mathews, Handl. Birds Austral., p. 80, 1908.

Diaphorillas housei Mathews, Nov. Zool., Vol. XVIII., p. 366, 1912.

Magnamytis housei Mathews, List Birds Austr., p. 233, 1913.

Magnamytis kimberleyi Mathews, Austral Av. Rec., Vol. V., pts. 2 & 3, p. 35, Feb. 21, 1923 : Kimberley, N.W. Australia.

DISTRIBUTION. North-west Kimberley, North-west Australia.

Adult Male. Head dark brown, or black, with pale shaft-streaks, the shaft-lines becoming white on the hind-neck and mantle, lined on each side with black and margined with chestnut ; back and lesser upper wing-coverts dark chestnut with shaft-lines of the same colour well pronounced, but more faintly on the short upper tail-coverts, the long tail-coverts black fringed with chestnut like the greater upper wing-coverts ; primary-coverts and quills blackish-brown, including the secondaries, all of which have obsolete cross-bars ; tail also dark brown with obsolete wavy cross-bars ; sides of face, ear-coverts, throat and under-surface black, thickly striated with white on the sides of the face, ear-coverts, throat, and fore-neck, but more faintly pronounced on the breast ; under wing-coverts dusky black, the marginal ones streaked with white. Iris-brown bill and legs black. Total length 203 mm. ; culmen 18, wing 76, tail 90, tarsus 29 ; middle toe and claw 21 ; hind-toe and claw 17. Collected on the rough bare sandstone at Camp 25, Kimberley, North-west Australia, and is the type of *Amytis housei* Milligan.

Another Male. Head black with white shaft-streak ; hind-neck and mantle rufous-brown with white shaft-lines to the feathers bordered with black ; back and lesser upper wing-coverts dark chestnut with pale shaft-streaks which become obsolete on the lower back ; greater upper wing-coverts and innermost secondaries dark brown edged with dark chestnut like the long upper tail-coverts ; primary-coverts and quills blackish-brown including the secondaries ; tail dark brown with obsolete wavy cross-bars ; chin dull white ; ear-coverts, sides of face, and throat dark

* The plate is lettered *Amytornis housei*.

THE BIRDS OF AUSTRALIA.

brown thickly streaked with white; breast, abdomen, sides of body, and under wing-coverts chestnut, the feathers of the upper breast have pale shaft-lines; vent and under tail-coverts black tinged with chestnut. Total length 182 mm.; culmen 18, wing 72, tail 89, tarsus 28; middle toe and claw 21; hind-toe and claw 17. Figured. Collected at the same place as the other in June, 1901, and is the type of *Magnamytis kimberleyi*.

Nest and Eggs. Not described.

THIS magnificent species was collected by Dr. House while exploring North-west Australia under the leadership of Mr. Fred S. Brockman and does not appear to have been met with since.

Dr. House's notes read: "This bird was first found near Camp F.B. 25, where the surrounding country was exceedingly rough, and strewn with piled-up masses of sandstone, in colour chiefly shading from red to black. It was observed running over the boulders, with which its colouring harmonizes so perfectly that it might easily pass unnoticed. In running, the bird lowers the head and tail, giving it a peculiar appearance, not unlike that which the Pheasant Coucal presents when running on the ground. Its distribution seemed to be entirely determined by the colour of the rocks. It was only observed running over the sandstone, and only in places where the colouring of the rocks harmonized with its own."

FAMILY—ARTAMIDÆ.

GENUS—ARTAMUS.

- ARTAMUS Vieillot, Analyse nouv. Ornith., p. 41,
 April 14th, 1816. Type (by monotypy) ... “*Langraien* Buff.”
 = *Lanius leucoryn*.
 = *leucorhynchus* Linné.
- Ocypterus* Cuvier, Le Règne Animal, Vol. I., p. 339,
 “1817” = Dec. 7th, 1816. Type (by monotypy) *Lanius leucorhynchus* Gm.
 = Linné.

Also spelt—

Oxypterus, *id.*, *ib.*, footnote.

Not—

Ocyptera “Latreille” Fabricius Syst. Antliat., p. 315, 1805.

Leptopteryx Horsfield, Trans. Linn. Soc. (Lond.),
 Vol. XIII., pt. I., p. 143, May, 1821. New
 name for *Ocypterus* Cuvier, as above, pre-
 occupied.

Cataphania Gistel, Naturg. Thierr. Schulen, p. X.
 (pref. Easter, 1847), 1848. New name for
 “*Oxyptera* Cuvier.”

LARGE Wood-Swallows with long stout bills, long pointed wings, long tail
 and short legs with stout feet.

The bill is stout and triangular, the tip sharply pointed, the culmen
 regular arched and the sides regularly expanding to a wide gap, the edges of
 the upper mandible rather sinuate and terminally inflected, overlapping the
 under mandible; the nostrils are placed midway between the culmen ridge
 and the edge of the mandible towards the base, but there is no defined nasal
 groove, simply an impression into which the feathers encroach and hide the
 nostrils, but the feathers at the base of the culmen ridge are not produced;
 rictal bristles are few and comparatively weak, and the nasal bristles are
 not pronounced; the under mandible is stout, nearly as deep as the upper,
 the gonys somewhat attenuated about half the length of the mandible, then
 the rami are widely divergent, forming a triangular interramal space which
 is fully feathered.

THE BIRDS OF AUSTRALIA.

The wing is very long and pointed with a very minute first primary, the second longest, the rest regularly decreasing to the ninth, which is equal to the short secondaries.

The tail is long and square, almost emarginate.

The legs are very short but stout, the feet stout; the front of the tarsus is strongly scutate, seven scutes being easily counted, the hinder portion bilaminate with a notable warty heel-pad. The middle toe is the longest, the claws sharp and strongly curved, the hind claw much the biggest; the outer and inner toes subequal, the claw of the former longest, and outer toe and claw exceeds the middle toe alone, the hind toe is stout and with long claw is about equal to the middle toe and claw.



H. Grönvold del

CAMPBELLORNIS PERSONATUS.
(MASKED WOOD-SWALLOW).

ARTAMUS LEUCORHYNCHUS.
(WHITE-RUMPED WOOD-SWALLOW).

Witherby & Co

ARTAMUS LEUCORHYNCHUS.

WHITE-RUMPED WOOD-SWALLOW.

(PLATE 475.)

LANIUS LEUCORYN.=(LEUCORHYNCHUS) Linné, Mantissa Plantarum, p. 524, 1771: "In Manillis."

Artamus leucopygialis Gould, Birds Austr., pt. VI., March 1st, 1842: New South Wales (Namoi River).

Artamus leucopygialis Gould, Birds Austr., pt. VI., Vol. II., pl. 33, March 1st, 1842; *id.*, Proc. Zool. Soc. (Lond.), (Nov.), 1842, p. 17; *id.*, Handb. Birds Austr., Vol. I, p. 154, 1865; Diggles, Orn. Austr., pt. XIII., 1867; Masters, Proc. Linn. Soc., N.S.W., Vol. I., p. 48, 1876; Castelnau and Ramsay, *ib.*, p. 380, 1877; Ramsay, *ib.*, Vol. II., p. 179, 1878; Campbell, Emu, Vol. XX., p. 62, 1920.

Artamus leucogaster Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 184, 1878; Ramsay, Tab. List Austr. Birds, p. 3, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 3, 1890; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 461, 1901; Hall, Emu, Vol. II., p. 60, 1902, N.W.A.; Le Souëf, *ib.*, p. 148, 1903, N.Q.; Ford, *ib.*, Vol. IV., pp. 71/2, 1904, N.Q.; Berney, *ib.*, Vol. V., p. 77, 1905, N.Q.; Mathews, Handl. Birds Austral., p. 80, 1908; Whitlock, Emu, Vol. VIII., p. 186, 1909, W.A.; Mathews, Emu, Vol. IX., p. 61, 1909, N.W.A.; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 251, 1909; Macgillivray, Emu, Vol. X., pp. 221-231, 1910, N.Q.; Broadbent, *ib.*, p. 235, 1910, N.Q.; Hill, *ib.*, p. 280, 1911, N.W.A.; Barnard, *ib.*, Vol. XI., p. 27, 1911, N.Q.; Peel, Emu, Vol. XIII., p. 96, 1913, Q.; Macgillivray, *ib.*, p. 173, 1914, N.Q.; Barnard, *ib.*, p. 207, N.T.; *id.*, *ib.*, Vol. XIV., p. 45, 1914, N.T.; Barrett, *ib.*, Vol. XVI., p. 18, 1916, N.S.W.; H. L. White, *ib.*, p. 224, 1917, N.T.; Campbell and Barnard, *ib.*, Vol. XVII., p. 28, 1917, N.Q.; Whitlock, *ib.*, p. 175, 1918, N.W.A.; Macgillivray, *ib.*, p. 202, N.Q.; Campbell, *ib.*, Vol. XVIII., p. 256, 1919.

Artamus leucorhynchus parvirostris Hartert, Nov. Zool., Vol. VI., p. 424, Dec. 9th, 1899: Cape York, Queensland; Hall, Emu, Vol. II., p. 60 note, 1902.

Artamus leucorhynchus leucopygialis Hartert, Nov. Zool., Vol. VIII., p. 170, 1901; *id.*, *ib.*, Vol. XII., p. 240, 1905; Mathews, Nov. Zool., Vol. XVIII., p. 366, 1912; *id.*, List Birds Austr., p. 234, 1913; *id.*, South Austr. Ornith., Vol. II., p. 57, 1915; S. A. White, Emu, Vol. XVIII., p. 22, 1918.

THE BIRDS OF AUSTRALIA.

Artamus leucorhynchus harterti Mathews, Nov. Zool., Vol. XVIII., p. 367, Jan. 31st, 1912 : (Parry's Creek), North-west Australia ; *id.*, List Birds Austr., p. 234, 1913 ; *id.*, South Austr. Ornith., Vol. III., p. 177, 1918 ; Söderberg, Kungl. Svenska Vet. Handl. Band 52, p. 95, 1918.

Artamus leucorhynchus melvillensis Mathews, Austral. Av. Rec., Vol. I., pt. II., p. 45, Apl. 2nd, 1912 : Melville Island.

DISTRIBUTION. Northern Tropical Australia, reaching into New South Wales ; Northern Victoria and South Australia, apparently in recent times.

Adult male. Crown of head, nape, sides of face, and throat slate-brown ; mantle, back, and scapulars dark coffee-brown ; wings and tail blackish slate-colour ; inner webs of flight-quills inclining to vinous-grey ; feathers behind the nostrils black and hair-like in texture ; breast, abdomen, under tail-coverts, entire sides of body, thighs, rump, and upper tail-coverts white like the axillaries, under wing-coverts, and base of quills below ; remainder of quill-lining greyish-brown ; lower aspect of tail similar but darker. Eyes brown ; feet and tarsi leaden-black ; bill distal, quarter of gonys and culmen black, remainder bluish-grey. Total length 190 mm. ; culmen 17, wing 129, tail 59, tarsus 16. Figured. Collected on Cooper's Creek, Melville Island, and is the type of *Artamus leucorhynchus melvillensis*.

Adult female. Similar to adult male.

Nest. Cup-shaped, composed of dried grass, sometimes placed in a hollow spout, at others in an old nest of *Grallina*. Inside measurements $2\frac{3}{4}$ inches wide by $1\frac{1}{2}$ deep.

Eggs. Clutch, three to four, and vary greatly in size and general disposition of the markings. A rather typical clutch of three is oval in shape, ground colour creamy-white, well spotted and blotched with rusty-brown and pale slaty markings, which are confined chiefly to the larger end where they form a well defined zone. Surface of shell fine, smooth, and slightly glossy. The clutch measures 22-23 mm. by 17.

Breeding-season. August or September to January or February.

CONCERNING this species Gould wrote : " On a careful comparison of specimens of the White-rumped *Artami* from India and the Indian Archipelago with those killed in Australia, I cannot but consider that at least two, if not three, species have been confounded under one name, and that the Australian bird had remained undescribed until characterized by me in the 'Proceedings of the Zoological Society' above quoted. The present species is most nearly allied to the *Artamus leucorhynchus*, but is readily distinguished from it by the blue colour of the bill ; and I may here remark, that the Australian birds are also considerably smaller in all their admeasurements than those of the islands to the northwards.

" Tasmania and Western Australia are the only colonies in which this bird has not been observed ; its range, therefore, over the continent may be considered as very general ; in South Australia and New South Wales it would appear to be migratory, visiting these parts in summer for the purpose of breeding. Among other places where I observed it in considerable

WHITE-RUMPED WOOD-SWALLOW.

abundance was Mosquito, and the other small islands near the mouth of the Hunter, and on the borders of the rivers Mokai and Namoi, situated to the northward of Liverpool Plains; in these last-mentioned localities it was breeding among the large flooded gum trees bordering the rivers. The breeding season commences in September and continues until January, during which period at least two broods are reared. In the Christmas week of 1839, at which time I was on the plains of the interior, in the direction of the Namoi, the young progeny of the second brood were perched in pairs or threes together, on a dead twig near their nest. They were constantly visited and fed by the adults, who were hawking about for insects in great numbers, some performing their evolutions above the tops and among the branches of the trees, while others were sweeping over the open plain with great rapidity of flight, making in their progress through the air the most rapid and abrupt turns; at one moment rising to a considerable altitude, and the next descending to within a few feet of the ground, as the insects of which they were in pursuit arrested their attention. In the brushes, on the contrary, the flight of this bird is more soaring and of a much shorter duration, particularly when hawking in the open glades, which frequently teem with insect life. When flying near the ground, the white mark on the rump shows very conspicuously, and strikingly reminds one of the House Martin of our own country (England)."

Captain S. A. White's notes read: "This (to my mind) most beautiful bird, both in plumage and flight, is now not at all an uncommon bird on the Murray River above Morgan. I say now, because I feel sure some thirty years ago the bird did not come below Overland Corner. I was collecting on the river in the eighties and for many years afterwards, but never met with this Wood-Swallow. In my opinion, this, like another member of the family, has come further south in the last few years than they ever did in the history of White Man. They are most elegant birds on the wing and as they hawk over the dark foliage of the trees along the river bank. I have never seen these birds far away from a lake or river. During the Cooper's Creek Expedition I observed these birds along the creek and they were nesting in the old mud nests of the Grallina. Upon comparing specimens I cannot see any very marked differences between the Cooper's Creek and River Murray birds, the latter being a little darker. Have not seen this bird north or west of the Cooper."

Mr. Christian has written me: "Arrives in North Victoria late in November and goes again in the middle of February; in 1907 arrived Nov. 25; in 1908, Oct. 19; on Jan. 29, 1909, passed north, and as late as March 18 saw a pair flying northward; on Oct. 12, 1909, they returned."

THE BIRDS OF AUSTRALIA.

Mr. T. P. Austin writing from Cobbora, New South Wales, states : " Never numerous in this district, but most springs a few arrive, and although I have never seen them in large flocks, at times as many as twenty birds may be seen in fairly close company; more often met with in pairs or three or four together. Strictly migratory, I have never seen them upon the ground for any purpose except to gather nesting material; they are mostly to be seen high up in fairly large trees, and they obtain all their food upon the wing. They nearly always perch upon a dead stick near the top of a tree, and generally two or more cuddled closely together; then suddenly one will sally forth after some passing insect, only immediately to return to the original perch, and then another bird will do exactly the same and so on. In this district their nests are invariably placed rather high up, and are either situated in an old Magpie-Lark's nest, in a shallow hollow, or where a branch has broken off, and it is no uncommon thing to see more than a pair of birds attending a nest from the time they commence building, until the young leave it. The nest is very similar to that of *A. cyanopterus*. The clutch is usually four. In North Queensland I found these birds nesting low down in the fronds of the pandanus palms growing on the islands. When sitting they are not very easily flushed, but when they do, will return almost immediately to the nest. All the nests I have examined containing eggs have been during October and November."

Mr. J. W. Mellor has written: "I have not seen this species in South Australia, but noted it at the Blackall Ranges in Queensland, and also observed it on the Tweed River, New South Wales, in November, 1907, where they had large young out of the nest, and were feeding them as they perched on telegraph wires; the old birds sallied forth and caught flies on the wing and returned to the young, who were perched in a row, uttering a plaintive chirping note and showing the usual characteristic wag of the tail from side to side."

From the Richmond District, North Queensland, Berney has recorded: "During the summer the White-rumped Wood-Swallows are here in fair numbers, but as the winter approaches they slip away, till in July they are represented by only occasional birds. Some winters they are entirely absent. They come back to us in August, and commence nesting without delay, as I have seen one sitting on its nest—it had made use of a disused Magpie-Lark's (*Grallina*)—on 27th August. It is a smart bird in appearance, and the most aërial of the *Artami*, except, perhaps, *A. minor*. From my diary I take the following: '*Artamus leucogaster* are here now (2nd August), in some numbers; I counted to-day one little party of thirteen up in the topmost branches of a gum on the river bank. They generally select the

WHITE-RUMPED WOOD-SWALLOW.

tops of the tallest trees, and from this point of vantage watch for any insects on the wing, now and again leaving their perch to sail round and round on easy wing. Situated as they were high overhead, all I could see was their under-surface—an expanse of spotless white shirtfront, topped with a sooty-grey head—reminding me of a gathering of negro minstrels. Nestling together in a row, they were on the best of terms, this little party, and as each returned, after having a look around, it shuffled along the limb till it was tight up against the outside bird, when it settled down, and called with contented chirps with a strong twang to a companion still floating in the beams of the lowering sun.' ”

Macgillivray has recorded: “Noted at Green Island and on a nest in a tree in the main street, Cairns, on 18th November, 1909; at Sedan in February, 1910, and frequently at Cape York. One nested in an old nest of *Chlamydera cerviniventris*, another in a cleft of a dead mangrove. . . There were always several flying about Lloyd’s Island and other islands along the coast on which there was any scrub. At Haggerstone Island several old nests were found in the tea-tree along the shore. Common on the Archer River in June.”

Mr. J. P. Rogers wrote from Melville Island: “Cooper’s Camp, Nov. 20, 1911. On the 4th I found a nest of this species; on the 16th it contained one egg, but on the 18th the egg was gone and nest abandoned. The nest was built in a small gum tree overhanging the sea-beach and was placed in a bunch of shoots which were growing where a branch was broken off. This species is fairly numerous along the foreshore, but none have been seen inland to date. Dec. 10, 1911. This is the only Wood-Swallow seen on the Island and is more numerous than I have ever seen it before. I saw a Wood-Swallow very like this one in the Botanical Gardens at Buitenzorg, Java, when I came through there recently. Dec. 20, 1911. 10 miles S.E. of Snake Bay. A few were seen in the paper-bark trees growing in the great swamp, but were very rare. Feb. 6, 1912. Cooper’s Camp. Still fairly numerous here.”

Mr. Tom Carter has written me: “Mr. Shortridge remarks in the *Ibis*, 1909, p. 672, that he found the White-rumped Swallow ‘plentiful and gregarious,’ and he obtained specimens at Carnarvon, West Australia, but he does not specify the localities *where* he found them plentiful. I am inclined to think that he happened to be collecting in a year when an irruption of this species had taken place, because in the course of seventeen years’ residence in the Gascoyne and North-west Cape Districts, these birds were never observed by me. But when at Carnarvon in September, 1911, a small party of them was seen by me near there for the first time. Again

THE BIRDS OF AUSTRALIA.

in Sept., 1913, another small party was seen at exactly the same place, and appeared to be breeding there. It was within two hundred yards of the beach."

Whitlock has recorded: "Breeding on the lower de Grey, and more commonly in the mangroves at Condon. . . The usual situation for the nest was in the topmost fork of the highest mangrove in the immediate neighbourhood. They were easily located, as the male was generally perched near at hand, and on my approach he gave vent to a harsh alarm note, to which the female usually responded and slipped off her nest."

In Rowley's *Ornithological Miscellany*, Sharpe gave a "Note on the genus *Artamus* and its Geographical Distribution," observing "there are several points in regard to the Australian *Artami* to which I particularly invite the attention of Mr. Ramsay and other workers at the antipodes." He there used the name *Artamus leucogaster* of Valenciennes for the species previously known as *A. leucorhynchus* on the grounds that the description given by Brisson of the Philippine Island bird was not sufficiently clear. He admitted a large range from India to the Philippine Islands and to Australia concluding "Having examined a large series of this *Artamus*, from nearly every locality mentioned above, I have come to the conclusion that only one species can be admitted, under the title of *A. leucogaster*, with a record of certain differences of size. Thus some examples from Celebes are larger, while the Australian birds are generally the smallest. Even in the Celebesian specimens the variation in size is more apparent than real, the length of the closed wing being in a Bornean bird about 5.35. I find that a specimen collected by Mr. Wallace at Tondano has the wing 5.3 inches; others from Macassar and Menado respectively have it 5.25. Some individuals from N.W. Australia (*A. leucopygialis*, Gould) measure only 4.95 inches in the wings; but there is no corresponding difference in plumage."

In view of this account, confirming Gould's already quoted, it is very strange to find twenty years afterwards the following note by Hartert: "*Artamus leucorhynchus parvirostris* subsp. nov. Notwithstanding the various statements, by ornithological authorities, that the Australian specimens of *Artamus leucorhynchus* could not be distinguished from those of other countries, I noticed at once that they had strikingly small bills, and upon comparing them with our large series from many localities I found that the Australian specimens were exceedingly much alike, and that the exposed part of their culmen was generally 15 to 16 mm., and never exceeded 17 mm., while it was 18 to 22 mm. in specimens from other localities. The difference, though numerically slight, is striking in the specimens. Those from Celebes and the Sunda Islands have the largest

WHITE-RUMPED WOOD-SWALLOW.

beaks, those from Timor, New Guinea, and from the Philippines, have them generally somewhat smaller, but the differences are very small and not constant enough for even subspecific separation, while those from the Andamans have the beaks of the same small size as those from Queensland! It would therefore, according to the diagnosis of my new subspecies, be necessary to call them also *A. l. parvirostris*. I believe it is very interesting, even for those who do not accept this subspecies, to know that *A. leucorhynchus* is not so constant as ornithologists made us believe, and that (as in some other cases) a form deviates from its average form in the centre (?) of its distribution in a similar way in both directions towards the outer limits of its area. Other such examples are *Cacatua triton*, *Nyctidromus albigollis*, *Macropteryx mystacea*. I cannot agree with Sharpe and Salvadori in rejecting the oldest Linnean name *leucorhynchus*. Brisson's figure is correct, his description leaves no doubt, and only this form inhabits the Philippines, so that there is no reason for rejecting this name; in fact, there are many less certain names in use in ornithology than *A. leucorhynchus*. The upper-side may, in contradiction to the white underside, have been termed black without going far wrong."

Two years later, in a paper dealing with Timorlaut Island birds, Hartert retracted in a peculiar manner, writing: "I am not prepared to unite the Timorlaut *Artamus* straightway with *A. leucorhynchus*. It is true that the alleged white tips to the rectrices are not a distinguishing feature . . . The rather large, high bill, however, seems a good distinguishing character. . . . There would be three races, namely:

- | | |
|---|---|
| <p><i>Artamus leucorhynchus leucorhynchus</i>.</p> <p><i>musschenbrocki</i>.</p> <p><i>leucopygialis</i>.</p> | <p>Philippines and most of the eastern islands. (Bill median.)</p> <p>Tenember Islands, and perhaps some other islands. (Bill large, higher.)</p> <p>North Australia, and perhaps parts of Southern New Guinea. (Bill smaller.)</p> |
|---|---|

This is the form which I named *A. leuc. parvirostris*, but I think Gould's name *leucopygialis* should be used for it."

It will be noted that Hartert did not mention his blunder of citing authorities for lumping, whereas Gould and Sharpe, the only two ornithologists who really mattered in this connection, had both recorded the opposite. Apparently Hartert had never referred to either of these authorities, and when he was righting his error he wrote: "I think," as if there was any doubt. Gould had named the bird correctly and on the same grounds as

THE BIRDS OF AUSTRALIA.

Hartert himself, and there was no doubt whatever of the perfect validity of his name, and it was only through an error that Hartert renamed Gould's form.

In my "Reference List" I accepted two forms, an eastern and western one, as

Artamus leucorhynchus leucopygialis Gould.

Queensland, New South Wales.

Artamus leucorhynchus harterti Mathews.

"Differs from *A. l. leucopygialis* in being much paler above (Parry's Creek), North-west Australia."

North-west Australia, Northern Territory.

I later named

Artamus leucorhynchus melvillensis.

"Differs from *A. l. leucopygialis* in its small wing and darker upper-surface."

Melville Island, Northern Territory.

but in my 1913 "List" I synonymised this with the preceding, allowing only the two I admitted in the "Reference List." This is probably incorrect, as although these birds are to some extent migratory, they appear to show good geographical variation, but long series are very necessary. Therefore I still allow the above, but to the range of *A. l. leucopygialis* must be added Northern Victoria and South Australia.

GENUS—CAMPBELLORNIS.

CAMPBELLORNIS Mathews, Austral Av. Rec.,

Vol. I., pt. 5, p. 113, Dec. 24th, 1912.

Type (by original designation) *Ocypterus personatus* Gould.

THIS very distinct group I thus characterized: "Differs from *Artamus* in its longer, more curved and much narrower bill, and its comparatively longer tail, though shorter wing."

The bill is long and narrow, and comparatively delicate, the culmen regularly arched, the tip quite pointed and the edges of the upper mandible slightly sinuate, expanding a little basally and overlapping the edges of the under mandible; the under mandible has the gonys narrow and almost decurved, the interramal space less than the gonys, and the rami slightly divergent, showing a narrow fully-feathered space; the nostrils are circular in a depression, not a well defined groove, and are open, not hidden by feathering as in the preceding.

The tail is longer and the wing is shorter, so there the proportions differ, so that the tail is about two-thirds the length of the wing. In other structural features this is quite like the preceding.

Key to the Species.

Under-surface reddish. Eyebrow white	...	...	<i>C. superciliosus.</i>
Under-surface light. No eyebrow	...	...	<i>C. personatus.</i>

CAMPBELLORNIS PERSONATUS.

MASKED WOOD-SWALLOW.

(PLATE 475.)

OCYPTERUS PERSONATUS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 149, July 1841: West Australia=York.

Ocypterus personatus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 149, 1841.

Artamus personatus Gray, Genera Birds, Vol. I., p. 285, 1845; Gould, Birds Austr., pt. VI., Vol. II., pl. 31, March 1st, 1842; *id.*, Handb. Birds Austr., Vol. I., p. 150, 1865; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 194, 1878; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878; *id.*, Tab. List Austr. Birds, p. 3, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 16, 1890; Hall, Key Birds Austr., p. 48, 1879; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 466, 1901; Hall, Emu, Vol. II., p. 59, 1902 (N.W.A.); Berney, *ib.*, p. 217, 1903 (N.Q.); Carter, *ib.*, Vol. III., p. 94, 1903 (M.W.A.); Berney, *ib.*, Vol. V., p. 77, 1905 (N.Q.); Austin, *ib.*, Vol. VII., p. 31, 1907 (N.S.W.); Hall and Rogers, *ib.*, p. 140, 1908 (N.W.A.); H. L. White, *ib.*, p. 158 (N.S.W.); Mathews, Handl. Birds Austral., p. 81 (1908); Chisholm, Emu, Vol. IX., p. 29, 1909 (Vic.); Gibson, *ib.*, p. 75 (W.A.); Crossmann, *ib.*, p. 88, (W.A.); North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 257, 1909; Hall, Emu, Vol. IX., p. 130, 1910 (S.A.); Chisholm, *ib.*, p. 167, (Vic.); Whitlock, *ib.*, p. 206, (M.W.A.); Howe, *ib.*, p. 232 (Vic.); Macgillivray, Emu, Vol. X., p. 90, 1910 (N.S.W.); Jackson, *ib.*, Vol. XII., p. 88, 1912; S. A. White, *ib.*, Vol. XIII., p. 29, 1913 (S.A.); Chandler, *ib.*, p. 41 (Vic.); Orton and Sandland, *ib.*, p. 79, (W.A.); S. A. White, *ib.*, p. 127, 1914 (S.A.); Macgillivray, *ib.*, p. 173, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 46, 1914 (N.T.); Cheney, *ib.*, p. 211, 1915 (Vic.); Campbell, *ib.*, Vol. XVIII., p. 6, 1918; Stone, *ib.*, p. 125, (Vic.); Cleland, *ib.*, p. 281, 1919 (N.S.W.); Ramsay, *ib.*, Vol. XIX., p. 5, 1919 (N.S.W.); Barrett, *ib.*, p. 246, 1920 (Vic.); Le Souëf, *ib.*, Vol. XX., p. 143, 1921 (W.A.).

Artamus gracilis Ingram, Bull. Brit. Orn. Club, Vol. XVI., p. 115, July 10th, 1906: Alexandra, Northern Territory; *id.*, Ibis, 1907, p. 409; Mathews, Handl. Birds Austral., p. 81, 1908.

Artamus personatus personatus Mathews, Nov. Zool., Vol. XVIII., p. 367, 1912.

Artamus personatus gracilis Mathews, *ib.*; Söderberg, Kungl. Svenska Vet. Handl., Band 52, p. 96, 1918.

MASKED WOOD-SWALLOW.

Artamus personatus munna Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 94, Sept. 18th, 1912 : (Moree), New South Wales.

Campbellornis personatus Mathews, List Birds Austr., p. 234, 1912.

Campbellornis personatus personatus Mathews, *ib.*

Campbellornis personatus gracilis Mathews, *ib.* ; *id.*, South Austr. Ornith., Vol. 3, p. 177, 1918.

Campbellornis personatus munna, Mathews, *ib.* ; Belcher, Birds Geelong, p. 292, 1914 ; S. A. White, Emu, Vol. XIV., p. 189, 1915 ; *id.*, *ib.*, Vol. XV., p. 160, 1916 ; *id.*, *ib.*, Vol. XVIII., p. 22, 1918.

DISTRIBUTION. Australia generally. Not Tasmania.

Adult male. General colour of the upper-surface slate-grey, including the crown of the head, sides of the neck, hind-neck, back, wings, and tail ; flight-quills vinous-grey on the inner webs, blackish-brown at the tips, which are narrowly edged with white, and black shafts to the feathers ; tail-feathers paler than the back with black shafts, cream-white tips, and obsolete cross-bars to some of the feathers ; rictal bristles numerous, short, and black ; fore-head, lores, a narrow line over the eye, entire sides of face, chin, and throat black ; a semi-circular line of whitish on the throat which extends to the sides of the face ; breast, abdomen, sides of body, and thighs much paler than the upper-surface and inclining to lavender-grey ; under tail-coverts cream-white ; axillaries and under wing-coverts white ; under-surface of flight-quills pale grey ; lower aspect of tail silver-grey tipped with cream-white. Eyes brown, feet and tarsi lead-grey, bill bluish-white with blackish tip. Total length 194 mm. ; culmen 19, wing 125, tail 81, tarsus 19. Figured. Collected at Bore Well, West Australia, on the 9th of August, 1909.

Adult female. General colour of the upper-parts slate-grey, including the top of head, back, wings, and tail, tinged with dusky brown on the mantle, upper back, and scapulars ; inner webs of flight-quills paler and inclining to white, or greyish-white, the tips dark brown slightly edged with whitish, and the shafts black ; inner-webs of tail-feathers also pale grey, becoming cream-white at the tips, the shafts black, with obsolete cross-bars to some of the feathers ; rictal bristles numerous, short and black ; feathers behind the nostrils, lores, and feathers surrounding the eye black ; chin, throat, and sides of face blackish slate-colour, somewhat darker and more glossy on the ear-coverts ; breast, abdomen, and sides of body vinous ; thighs grey ; under tail-coverts cream-white like the axillaries and under wing-coverts ; under-surface of quills below silvery-grey, darker towards the tips ; lower aspect of tail also silvery-grey tipped with cream-white. Eyes dark brown ; feet and tarsus leaden-black. Distal third of bill and the gonys black, remainder bluish-grey. Total length 200 mm. ; culmen 17, wing 115, tail 77, tarsus 21. Figured. Collected on Marngle Creek, North-west Australia, on the 21st of May, 1911.

Eggs. Vary from two to three for a sitting, and closely resemble those of *Artamus superciliosus*. A clutch of three is swollen oval in shape, ground-colour of a pale greenish-grey, well speckled and spotted all over with markings of umber and pale slate, becoming confluent at the larger end. Surface of shell fine, smooth and rather glossy. The clutch measures 24 mm. by 16-17.

Nest. Very closely resembles that of *Artamus superciliosus* in size and shape. Frequently placed within hands' reach of the ground in a small tree or a bush.

Breeding season. August to December or January.

THE BIRDS OF AUSTRALIA.

ALTHOUGH Gould described this species he acknowledged: "My knowledge of the range of this species is very limited; a single specimen was sent me from South Australia, while fine examples were killed by Gilbert in the colony of Swan River. Its richly coloured black face and throat, separated from the delicate grey of the breast by a narrow line of snowy-white, at once distinguishes it from every other species, while the strong contrast of these colours renders it a conspicuous object among the trees. In size and structure it more nearly resembles the *Artamus superciliosus* than any other, and the two species form beautiful analogues of each other, one being in all probability confined to the eastern portion of the country, and the other to the western. 'I have only met' says Gilbert, 'with this species in the York and Toodyay districts. It is very like *Artamus sordidus* in its habits, but is more shy and retired, never being seen but in the most secluded parts of the bush. It is merely a summer visitant here, generally making its appearance in the latter part of October, and immediately commencing the task of incubation. Its voice very much resembles the chirping of the English Sparrow. Its food consists of insects generally and their larvæ.'"

Captain S. A. White has written: "This bird is found all over the state of South Australia from the seacoast to the far interior. They come south in some years in great numbers, often accompanied by *C. superciliosus*, and have often selected an avenue of pines, the entrance to my home, where they have nested on almost every limb, behind pieces of bark, on old stumps, etc., often but a foot or so from the ground. The nest is a rather open one, composed of rootlets and not lined; three being the usual number of eggs, but many nests only contain two. The young are born almost naked, only a very small tuft of down on the shoulders and sometimes a spot or two down the back; they grow very rapidly and soon leave the nest. The parent birds are most confiding, but should one go near the nest they will swoop down, making loud calls and snapping their bills. Very large flocks are to be seen flying very high up and evidently moving according to food supply. At other times they are to be seen hawking close to the ground. To my mind their aërial movements are the most beautiful of all birds, and their call very distinctive of the family."

Mr. E. J. Christian has written: "This species arrives in Northern Victoria towards the middle of September; in 1907 they began to arrive Sept. 15; in 1908, on Oct. 1st. On April 10, 1909, flocks passed north, and big mobs returned on Oct. 16."

Dr. Cleland has written me: "On Nov. 27, 1897, large numbers were near Adelaide, fifty might be seen at one place. Some would pitch on, others hover over, the ground; others sitting on the posts and taking short flights.

MASKED WOOD-SWALLOW.

When their wings caught the sun they shone like silver and satin, and a more elegant bird could not be imagined. The white on their tails was at times very conspicuous, as well as their black throats. They utter a constant twitter, reminding one somewhat of the cry of a startled grass-parrot. We found sixteen of their nests, as a rule very poor structures, placed seven to ten feet from the ground in *Melaleucas*. Where two thickish branches forked, a few twigs were arranged in a cup-shaped fashion which sat, as it were, in the fork. In many cases, the contents could easily be seen from below, though some nests were much better fashioned than others, deeper and lined with dry grasses. They usually chose horizontal forked branches, and nearly all the eggs were near hatching, while some nests had unfledged young. Four nests had one young one each, one had two, and one had three young, seven nests had two eggs each, two had three, and one had one egg."

Mr. Sandland, writing from Balah, South Australia, states: "Is a stationary species and easily the most common of the Wood-Swallows. I can see plenty of nests each season in certain patches of scrub."

I think this statement needs confirmation in view of other reports.

Mr. Tom Carter's notes read: "*Artamus personatus*. A few were seen at Broome Hill almost every summer, and, occasionally, very large flocks. Odd pairs of birds had been observed resting in the late spring of previous years, but in November, 1912, there was a most unusual irruption of them. They arrived suddenly, in great flocks, and were in all my paddocks, making a great chattering and fuss. On November 12th I saw several birds, but by the 17th they were everywhere and had commenced to make their nests, one of which, containing two eggs, was found on the 22nd. The nest was built in a hollow in the top of the stump of a tree which had broken off, about 9 feet from the ground. Another nest was built in the thick foliage of a Stinkwood Tree, about 8 feet above ground. It contained three eggs. A third nest was in a prickly banksia bush, only 4 feet from the ground, and contained four eggs. On Nov. 27th young birds were seen in another nest. As my shearing was in full swing at the time, I was unable to make as many notes as I should have liked, but many other nests were observed, and the boys mustering, remarked that their nests and eggs were everywhere. The nesting material was mostly green stalks of everlasting, sometimes with the flowers attached, and linings of fine dry roots and grass. The nests were rather shallow, inside diameter about $2\frac{1}{2}$ inches. Full clutch 4 eggs. The bulk of the birds went away as soon as the young were strong on the wing, which was towards the end of the year. An odd nest containing 4 eggs was seen on Dec. 8th. At Point Cloates this species was rarely seen, an occasional bird or two being noted when parching hot winds were blowing

THE BIRDS OF AUSTRALIA.

from the east. On Feb. 17th, 1900, two of them perched on the wire stay of the house flagstaff (mast off a wrecked pearling lugger), and were shot for identification. A heavy north-east gale with severe duststorm preceded their appearances. These birds, when on the wing, constantly utter their chattering note."

Mr. J. P. Rogers has sent me the following: "May 17th, 1911. At 'Willin' Camp, about thirty miles out from Derby, on the Fitzroy, I saw several of these birds for the first time this year. They leave this locality before the wet season and return in May and June. I have never been able to get the date the last leave, but it seems to be in October. On May 19th, 1911, at Marngle Creek, several small flocks were seen and on May 28th the birds were in hundreds, many large flocks being seen. On reaching Mungi Rockhole I found the birds scarce, and now on the 3rd of July I have seen none for the past week. The country here is practically desert and insect life is scarce, so there would not be food for the large flocks seen in the better watered country. Usually these birds are in thousands along the Fitzroy. Often there are one or more pairs of *A. superciliosus*, apparently stragglers, but this year I have seen none. At Derby, on 25th to 30th July, they were still numerous."

Hall had previously recorded Roger's notes from Derby: "On 24/5/00 this species arrived in thousands, and as with *A. superciliosus*, noted, it seems as if they had arrived at or near the end of migratory course. There were a few before this date. The next month in the following year (26/6/01) they also appeared in thousands (Lower Livuringa)."

Under *A. superciliosus*, Rogers' note reads: "In the two specimens the irides differ from Gould's description (black); male is nearer orange, female lighter yellow. Within the last few days (24/5/00) this species appears to have arrived, possibly from their migratory course. They are now feeding upon the honey-laden flowers, and this perhaps accounts for their brush tongues. They are eating in the company of *A. personatus* and *Manorhina lutea*."

Simultaneously Berney recorded from Queensland: "I had no idea till quite recently that the Wood-Swallows were honey-eaters, or perhaps it would be more correct to say eaters of honey. Two of the species (*A. personatus* and *A. superciliosus*) have been flocking lately on the baubinia trees, which are just now in full bloom. I watched them quite close, there being no need for the glasses, for in their eagerness to gather their breakfast of honey they crowded round me within 8 feet of my head. They make an animated scene, seven or eight hundred in a tree, continually shifting from flower to flower, at the same time keeping up an incessant twittering and chirping. I wanted

MASKED WOOD-SWALLOW.

some of these birds for examination, so, walking back 40 yards from the tree on which they were flocking, I fired into the middle of them, bringing down one or two, when the mob rose in a cloud, circled round a couple of times, and then settled again in the same tree under which I was. Picking up the fallen birds I took their descriptions and measurements, and dissected them to find out their sexes. Ovaries in the females contained only very small eggs indeed, while the testes in the males were also very small (this was 13th August). The stomachs of all contained ants, and one had a small beetle. (Does not this suggest that the birds were capturing insects rather than seeking honey, the insects being attracted by the nectar-laden blossoms?—Eds., *Emu*.) I have since watched *A. cinereus* honey-eating, but they never, so far as I can see, mob with the two previously mentioned. Gould makes no mention of this habit of the *Artami*."

He later recorded under *A. superciliosus*: "A winter resident, when it may be seen in big flocks, in company with *A. personatus*, feeding and flying together and twittering like a lot of Sparrows. The fact of these birds seeking honey from the flowers was doubted by some readers, but as the birds have brush tongues the habit should not have been unexpected. I never saw any sign of their nesting here, and during the months October to February inclusive I have only one record—I saw two on the 19th December, 1898. *A. personatus*. There seems to be a closer family tie between this *Artamus* and the preceding one than between any of the other *Artami* in this district. The remarks on this bird are practically a repetition of those given for *A. superciliosus*. But in 1898 a few pairs remained through the summer to breed, as I found a nest in November and two in December that year."

Some few years afterwards Chisholm also noted that these birds were honey-eaters, but recorded it as a novelty in his experience.

Whitlock has recorded from the East Murchison: "Large numbers passed during the latter half of July, and again during the earlier part of August. On the spinifex plain at Bore Well during the latter period a large flock became weather-bound. I was hunting for *Amytornis* nests, and these Wood-Swallows proved a serious distraction. It was very fascinating to watch such large numbers of birds feeding all around one. They were not hawking for insects, but were extracting the nectar from the flowers of a very curious plant, which was growing abundantly where the spinifex had quite recently been swept clean by a bush fire. . . . The most curious habit of this plant is that it throws out its flowers at the base of the stalk. The Wood-Swallows were crouching down quite flat in extracting the nectar, and their foreheads and crowns were thickly coated with the yellow pollen.

THE BIRDS OF AUSTRALIA.

All these flights of Wood-Swallows were accompanied by flocks of *Ephthianura tricolor*, and by small numbers of the Pied Honey-Eater (*Entomophila leucomelas*). A number of the present species remained to breed in the scrub just on the edge of the spinifex plain. I examined a dozen or two of their fragile, ill-constructed nests. None contained more than two eggs. The nests were placed in a variety of situations. When I passed through the spinifex on my return in November not a Wood-Swallow was to be seen."

Captain S. A. White has written about his trip to the Gawler Ranges: "On one occasion only did we meet with these birds; that was in the centre of the ranges on 15th September, 1912, a day to be remembered, for the wind had been blowing with great force for many days, but on that day it seemed to excel in energy. Although we were camped under the lee of a steep spur in thick mulga scrub, it was almost impossible to light a fire or keep a duck tent from blowing to pieces. In a gully close to our camp we came upon a vast host of these birds, sitting on the ground, or holding tightly to the lower branches of the mulga to try and escape the terrific wind as much as possible. No doubt they were migrating prior to nesting, and had been forced to take shelter from the elements."

Macgillivray has written: "First noted in the Gulf (Queensland) on 8th June, when on the Leichhardt road. On the 12th June, a large flock passed the camp at sundown, flying north. Again seen on the Gregory River on 22nd July, 1910. Great numbers of this migratory species appeared in Western New South Wales early in August, 1910, and continued to arrive until well on into September. Very few, however, remained to nest."

Under the name *Artamus superciliosus*, Cleland has written the following in his *Birds of the Pilliga Scrub, N.S.W.*: "White-browed Wood-Swallow. A few birds of this species and of the following were seen throughout the journey at odd places, but in the neighbourhood of Merebene and Wangan they were found in large numbers, resting in white cypress-pines (*Cellitris robusta*), eucalypts, and dead ring-barked trees on the edges of cleared land. Early one morning, every half-hour or so, they rose in a cloud into the air, probably 200 or more being seen at one time. The cloud of birds gradually circled higher and higher, making a great noise, and separating as they rose. Finally they made their descent and returned to the trees. The two species were intermixed, though probably *A. personatus* predominated. Noticing that the birds were congregating on the upper branches of some of the white cypress-pines, I approached close to them, and was surprised and interested to notice that they were apparently feeding on

MASKED WOOD-SWALLOW.

something, and were not assembling together prior to further migration. Looking carefully on the trees where they had been feeding, a few scale insects at once arrested attention, and seemed a reasonable explanation for the attraction of the birds. However, shortly afterwards, one of my companions, Mr. Taylor, called my attention to glistening points, on the fine branchlets of some of these pines, that caught and reflected the morning light. It was, he said, a honey secretion that appeared when 'the sap began to move,' *i.e.*, about the time of flowering. When the small twigs of such a tree were handled, the hands became very sticky, whilst the branchlets and leaves, when sucked, gave a sweet taste. A small bunch, taken to Sydney, was still quite sticky on arrival, and was handed over to Mr. H. G. Smith, of the Technological Museum, who was able to ascertain that the exudation, which was not associated with any insect parasite, was a true sugar. This phenomenon has apparently not been recorded previously. After having this interesting feature pointed out to me, I returned to my Wood-Swallows, and, by watching them, satisfied myself that they were indeed feeding on this secretion. I then recalled that, whilst skinning a Wood-Swallow on the previous evening, I had found the crown of the head sticky, as if from honey. One of each species shot was, it may be added, rolling in fat. It would be of interest to know whether the migration of these Wood-Swallows is in search, in part, of pines bearing this secretion, and whether annually they repair to particular areas for it. Iris very dark brown; bill black at the tip, base bluey-grey; pharynx blackish; legs black, with a whitish bloom. *Artamus personatus*. This was met with in company with the preceding, and predominating, perhaps, greatly in numbers. Over 218 birds of the two species were counted whilst travelling, thus avoiding counting the same birds again. Probably many more were actually seen altogether. Iris very dark brown; bill black at the tip, base bluey-grey, inside of bill black; pharynx flesh-coloured; legs greyish-black with white bloom."

The above suggestion deserves consideration, as at present there seems to be little known regarding the causes of the irregular mob-movements of this and the next species.

The technical history of this beautiful species is short and uninteresting. In 1906, Ingram, attracted by the coloration of birds from Northern Territory, described as new "*Artamus gracilis*. Similar to *A. personatus*, but much more ashy in its general colour, the rump and upper tail-coverts being of a purer grey than the back and scapulars, which are almost uniform in colour with the head, and not dusky as in *A. personatus*. Total length 7·3 inches, culmen ·8, wing 4·7, tail 3·3, tarsus ·8."

THE BIRDS OF AUSTRALIA.

In my "Reference List" in 1912 I admitted

Artamus personatus personatus (Gould).

Queensland, New South Wales, Victoria,
South Australia.

Artamus personatus gracilis Ingram.

Northern Territory, North-west Australia.

The type locality of *A. personatus* has been selected as "Victoria," but the "type" specimens in the Philadelphia Museum all being from West Australia, the latter is now regarded as the correct type locality, and I therefore named

Artamus personatus munna.

"Differs from *A. p. personatus* (from South-west Australia) in having the black of the forehead much more pronounced and in having a thicker bill. (Moree) New South Wales";

and in my 1913 "List" I arranged

Campbellornis personatus personatus (Gould).

South-west Australia.

Campbellornis personatus gracilis (Ingram).

Northern Territory, North-west Australia.

Campbellornis personatus munna (Mathews).

Queensland, New South Wales, Victoria,
South Australia.



H. Grönvold. del

Witherby & Co

CAMPBELLORNIS SUPERCILIOSUS.
(WHITE-BROWED WOOD-SWALLOW).

PSEUDARTAMUS CYANOPTERUS.
(WOOD-SWALLOW).

CAMPBELLORNIS SUPERCILIOSUS.

WHITE-BROWED WOOD-SWALLOW.

(PLATE 476.)

Ocypterus superciliosus Gould, Synops. Birds Austr., pt. I., pl. 1, f. 2, Jan. 1st, 1837 :
Hunter River, New South Wales (Interior).

Ocypterus superciliosus Gould, Synops. Birds Austr., pt. I., pl. 1, f. 2, 1837 ; *id.*, Proc.
Zool. Soc. (Lond.), 1836, p. 142, June 1837.

Ocypterus superciliosus Peale, United States Expl. Exped., Vol. VIII., pp. xvi., 83 (in or
before October), 1848 : New South Wales.

Artamus superciliosus Gray, Genera Birds, Vol. I., p. 285, 1845 ; Gould, Birds Austr., pt. VI.,
Vol. II., p. 32, March 1st, 1842 ; *id.*, Handb. Birds Austr., Vol. I., p. 152, 1865 ;
Diggles, Orn. Austr., pt. XIII., 1867 ; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p.
193, 1878 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878 ; *id.*, Tab.
List Austr. Birds, p. 3, 1888 ; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 15,
1890 ; Hall, Key Birds Austr., p. 48, 1899 ; Campbell, Nests and Eggs Austr.
Birds, Vol. I., p. 463, 1901 ; Hall, Emu, Vol. II., p. 59, 1902 (N.W.A.) ; Hill, *ib.*,
p. 162, 1903 (Vic.) ; Graham, *ib.*, p. 214 (Vic.) ; Berney, *ib.*, p. 217 (N.Q.) ; Johnston,
ib., Vol. V., p. 52, 1905 (Tas.) ; Berney, *ib.*, p. 77 (N.Q.) ; Austin, *ib.*, Vol. VII.,
p. 31, 1907 (N.S.W.) ; Hall and Rogers, *ib.*, p. 140, 1908 (N.W.A.) ; Mathews,
Handl. Birds Austral., p. 81, 1908 ; Chisholm, Emu, Vol. VIII., p. 219, 1909 (Vic.) ;
North, *ib.*, p. 224 (hybrid) ; Chisholm, *ib.*, Vol. IX., pp. 29-32, 1909 (Vic.) ;
North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 253, 1909 ; Hall, Emu, Vol. IX.,
p. 130, 1910 (S.A.) ; Chisholm, *ib.*, p. 167 (Vic.) ; Whitlock, *ib.*, p. 206 (M.W.A.) ;
Howe, *ib.*, p. 232 (Vic.) ; Ingle, *ib.*, Vol. X., p. 125, 1910 (Vic.) ; S. A. White, *ib.*,
Vol. XI., p. 208, 1912 (N.S.W.) ; Wilson, *ib.*, Vol. XII., p. 37 (Vic.) ; Austin, *ib.*,
p. 42 (N.S.W.) ; S. A. White, *ib.*, p. 125 (S.A.) ; Chandler, *ib.*, Vol. XIII., p. 41,
1913 (Vic.) ; Macgillivray, *ib.*, p. 173, 1914 (N.Q.) ; Barnard, *ib.*, Vol. XIV., p. 45,
1914 (N.T.) ; S. A. White, *ib.*, p. 142, 1915 (Mallacoota) ; Cheny, *ib.*, p. 211 (Vic.) ;
Barrett, *ib.*, Vol. XV., p. 178-258 and pl., 1916 (N.S.W.) ; *id.*, *ib.*, Vol. XVI., p. 15 ;
Lawrence and Littlejohns, *ib.*, p. 238, pl. 46, 1917 ; Morse, *ib.*, Vol. XVIII., p. 71,
1918 ; Stone, *ib.*, p. 125 (Vic.) ; Cleland, *ib.*, p. 281, 1919 ; Ramsay, *ib.*, Vol. XIX.,
p. 5, 1919 (N.S.W.) ; Barrett, *ib.*, p. 246, 1920 (Vic.) ; Le Souëf and Macpherson,
ib., Vol. XX., p. 88, 1920 (N.S.W.).

THE BIRDS OF AUSTRALIA.

*Artamus phæus** Ingram, Bull. Brit. Ornith. Club, Vol. XVI., p. 115, July 10th, 1906 : Alexandra, Northern Territory ; *id.*, Ibis, 1907, p. 410 ; Mathews, Handl. Birds Austral., p. 81, 1908.

Artamus superciliosus superciliosus Mathews, Nov. Zool., Vol. XVIII., p. 367, 1912.

Artamus superciliosus phæus Mathews, *ib.*

Campbellornis superciliosus Mathews, List Birds Austr., p. 234, 1913 ; S. A. White, Emu, Vol. XV., p. 160, 1916 (S.A.) ; *id.*, Vol. XVIII., p. 22, 1918 (S.A.).

Campbellornis superciliosus superciliosus Mathews, List Birds Austr., p. 234, 1913 ; Belcher, Birds Geelong, p. 293, 1914 ; S. A. White, Emu, Vol. XIV., p. 189, 1915.

Campbellornis superciliosus phæus Mathews, List Birds Austr., p. 235, 1913 ; *id.*, South Austr. Ornith., Vol. 3, p. 178, 1918.

Campbellornis superciliosus pallida Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916 : South-west Australia.

DISTRIBUTION. Australia generally, subject to impulsive migratory "rushes" to the southwards. Not Tasmania, save as accidental at King Island once.

Adult male. General colour of the upper-surface dark slate-grey, including the top of the head, back, wings, and tail, the fore-part of the head somewhat darker than the crown ; flight-quills rather paler than the back, inclining to white at the base of the inner webs, becoming darker towards the tips, which are slightly edged with white, and the shafts black ; tail paler than the back, with black shafts and cream-white tips to the feathers ; a broad white superciliary line above the eye, which extends along the sides of the crown ; lores, eyelids, sides of face and chin black with hair-like tips to the feathers on the lores and chin ; rictal bristles black ; throat and sides of neck dark slate-colour like the back ; breast and abdomen dark chestnut becoming paler and inclining to cinnamon-chestnut on the under tail-coverts ; axillaries and under wing-coverts white ; under-surface of flight-quills silver-grey ; lower aspect of tail also silver-grey with cream-white tips to the feathers. Eyes deep brown, feet and tarsi mealy-black, bill bluish-white, tip blackish. Total length 200 mm. ; culmen 18, wing 134, tail 83, tarsus 20. Figured. Collected at Bore Well, West Australia, on the 6th of August, 1909.

Adult female. General colour of the upper-surface dark slate-colour including the top of the head, hind-neck, sides of neck, back, wings, and tail with a tinge of dusky-brown on the upper back and scapulars ; inner webs of flight-quills cream-white at the base fading to vinous-grey towards the tips, which are slightly edged with white, and have black shafts ; the tail, which is paler than the back, has cream-white tips to the feathers ; an indication of a narrow superciliary streak which reaches to just behind the eye ; lores and eyelids black, the feathers bristly in texture ; rictal bristles black ; throat, sides of face, and upper breast dark slate-colour ; lower breast, abdomen, and sides of body dull chestnut, fading to pale cinnamon on the long under tail-coverts ; thighs grey ; axillaries and under wing-coverts cream-white ; under-surface of flight-quills silvery-grey ; lower aspect of tail also silvery-grey, rather darker on the sides and cream-white tips to the feathers. Eyes hazel, feet black, bill bluish, tip black, wing 128, tail 76. Figured. Collected at Auburn, South Victoria, on the 4th of March, 1908.

Eggs. Clutch, vary from two to four for a sitting, and in shape from ovals to swollen and rounded ovals.

* Also spelt *phaeus*.

WHITE-BROWED WOOD-SWALLOW.

A typical clutch of three is oval in shape, ground colour of a dirty or creamy-white, well speckled and spotted all over with markings of umber and pale slate, forming a well marked zone at the large end. Surface of shell fine, smooth, and rather glossy. The clutch measures 23-24 mm. by 17-18.

Nest. An open and frail structure, rather saucer-shaped and shallow. Constructed of dried grasses, rootlets, strips of bark and thin twigs, etc., and lined with fine grass or rootlets. Dimensions usually about 4 inches across by 2 in depth, and egg cavity nearly 3 inches across by 1 inch in depth. Nest is placed in a variety of situations, but usually in a bush or a tree.

Breeding-season. October to January.

WHEN Gould projected his great work on Australian birds he anticipated it by a publication entitled: "*A Synopsis of the Birds of Australia and the adjacent islands*, in which figures of heads, wings and feet were given. These are beautifully drawn and coloured and on the first plate appears the head of the present species. It is fully described in the accompanying letterpress, reference being given to the Proceedings of the Zoological Society of London for 1837; as the first part of the Synopsis appeared on January 1st, 1837, and the Proceedings quoted not until much later, the earliest published account is obviously that in the Synopsis.

Of this fine species Gould wrote: "There is no species of *Artamus* yet discovered to which the present yields the palm, either for elegance of form, or for the beauty and variety of its plumage. . . I am unable to say what is the extent of its range, but I am induced to believe that it is confined to Australia, and that in all probability it seldom leaves the interior of the country; the extreme limits of the colony of New South Wales, particularly those which border the extensive plains, being the only parts where it has yet been observed. I first met with it at Yarrundi on the Dartbrook, a tributary of the Hunter, where it was thinly dispersed among the trees growing on the stony ridges bordering the flats. From this locality to as far as I penetrated northwards on the Namoi, as well as in the direction of the River Peel, it was distributed in similar numbers, intermingled with the *Artamus sordidus*, at about the ratio of one hundred pairs to the square mile, the two species appearing to live and perform the task of incubation in perfect harmony, both being frequently observed on the same tree. In their dispositions, however, and in many of their actions, they are somewhat dissimilar, the *A. superciliosus* being much more shy and difficult of approach than the *A. sordidus*, which is at all times very tame; it also gives a preference to the topmost branches of the highest trees, from which it sallies forth for the capture of insects, and to which it again returns, in the usual manner of the tribe. In every part where I have observed it, it is strictly migratory, arriving in summer, and departing northwards after the breeding-season."

THE BIRDS OF AUSTRALIA.

Mr. J. W. Mellor has written me : " This is a common migratory species to the Adelaide Plains, coming in company with *A. personatus* at different parts of the year, and seem to mix together with all confidence and peaceableness although I have never found them interbreeding, but they often place their nests quite close by those of each other, almost in the same tree, but do not intermix. They often arrive in flocks, flying high when they first come and then coming down low, and taking possession of the thickly bushed and treed parts, the Reedbeds being quite an ideal locality for them to find their living. They soon start to build their loose nests of small twigs, lined with fibrous rootlets ; they are sometimes placed in the upright fork of a small tree, and sometimes placed behind a piece of loose bark on the side of a large gum tree, but they are easily found, as the birds keep up a constant calling, being somewhat plaintive, sometimes harsh ; if they are disturbed they take no care to hide their home, but fly backwards and forwards over it and settle by and on it even while the intruder is near by."

Mr. A. G. Campbell has sent me a note : " A great invasion into Southern Victoria occurred in September-October, 1895. Birds in countless numbers were nesting in the Mornington Peninsula in every available position, high up in trees, in boles of trees, in shrubs and bushes, filling the air with grey flashing wings and cheery cries. Nests contained two eggs each, though one was noticed with 3 eggs which were small in size. A few pairs of *A. personatus* were in these flocks. About the suburbs of Melbourne the birds also came, and some even nested in shade trees by the roadsides of Toorak and Royal Park. At the gardens of the School of Horticulture, Burnley, four miles only from the General Post Office, Melbourne, the birds found a peaceful spot and I saw nests in practically every kind of tree in the place, even to the raspberry canes and gooseberry bushes. Near Stawell, in the early summer of 1908, I observed numbers of *A. superciliosus* with a few *A. personatus* among them feeding upon the blossoms of box trees (*Eucalyptus melliodora*). The birds would fly in, cling among the flowers for a few seconds, and then circle out again. I presumed the birds were seeking the nectar, but the presence of considerable numbers of small plant bugs among the blossoms may have been another reason. These Wood-Swallows also feed largely upon the ground on grasshoppers and other insects."

Mr. Edwin Ashby has sent me the following : " These two species (*A. superciliosus* and *A. personatus*) always come together, usually in large numbers, making their first appearance more often than not on a very hot north wind day, only staying perhaps two days and then disappearing for a week or more. Whether the same flock returns or others take their places I cannot say, but on the second visit they proceed to work without delay,

WHITE-BROWED WOOD-SWALLOW.

making flimsy nests of small twigs or grass which have eggs a few days after second arrival, usually two, sometimes three. The nest is usually within easy reach, sometimes in a fork of acacia or casuarina, but in the Mannum district last October (1919 ?), a favourite place was in the leafy tops of low thick tea tree. Both these species in some years come in thousands. They usually settle on some prominent twig or top of tree, making spasmodic flights from the vantage ground, returning to the twig after graceful hawking for insects for some time. When the intruder is near the nest, the parent birds fly to tree adjacent to nest and make a great chattering noise, wagging their tails vigorously from side to side. Near Mannum, while there were thousands of *A. parsonatus* nesting, there were very few pairs of *A. superciliosus*."

Mr. T. P. Austen has written: "As these two species, the White-browed and Masked Wood-Swallows arrive here (Cobbora district, New South Wales) together during the early spring in very large flocks, and owing to their habits being exactly similar, my notes upon one apply to the other in all respects, excepting that the former is much more numerous. Usually first seen flying very high in the air, sometimes so high that they are only just visible, where one's attention is first drawn to them by hearing their clear twittering notes. Some years they come in thousands, but most of them pass on to breed, although always a few of the White-browed remain for that purpose, but seldom so with the Masked. Of all the birds met with in this district, I know of none which from the time of the commencement of the nest, until the young leave it, is accomplished in so short a period, their nest being a very frail, scanty structure, which is completed in three days or sometimes even less. I have never actually timed the period of incubation, but it always appears to be very short compared with other species laying eggs of the same size, and the young birds certainly grow wonderfully quickly. I look upon these birds as the most useful of all our feathered friends, the vast number of insects they destroy each year must be simply enormous, their appetites never seem to be satisfied, as, excepting when migrating and sitting, they are feeding practically the whole day long. I have never seen them in thick scrubs, preferring the open forests, but more especially 'ring-barked' country, also having a preference for orchards and parks, and even small gardens, etc., where they breed freely. *A. superciliosus* places its nest in almost any situation, usually at no very great height from the ground, such as on horizontal branches of almost any tree, on top of stumps and stockyards posts, and in their mortice holes, between pieces of hanging bark and the trunk of a tree, and even in shallow hollows in dead and living branches, and quite regardless of the presence of man or any kind of traffic. The nests are of such a flimsy nature, that when placed upon the branch of

THE BIRDS OF AUSTRALIA.

a tree, the eggs can often be seen through the material from beneath; it is composed of a few pieces of green-plant stems and roots. The clutch is usually two in number, sometimes three, and I have seen nests containing eggs from the middle of September till the end of November."

Mr. E. J. Christian writes me: "These birds ought to be called the 'Grasshopper Birds' as the good work they do for us in the Riverina can never be over-estimated. I have seen acres and acres here simply covered with the birds and when you pass by sometimes the whole arise in a grey chirping mass. At other times only those near you get up and the rest take no notice. Before settling on a good patch of grasshoppers one can hear an incessant din of far away whispering (very much like the chirping, only louder, of the Sparrow). Looking overhead one can see nothing but a huge black cloud of these birds fluttering about in the air. The two above-mentioned species congregate together, although the former (*personatus*) come earlier. The latter (*superciliosus*) generally prevail in numbers to a great extent. The birds (if the grasshoppers are thick) will often stop in the one spot for days at a time devouring the pest, and I know of one part (1907) where for three days the birds were so thick in one flock that they extended for about one mile and a half down the road. These birds must return by a different route, for I have never seen them passing here on their northward journey. They stayed here for several weeks, from Sept. 15th to Oct. 15th, when the main flocks went further south and odd pairs separated with the intention of staying here and nesting."

Mr. F. E. Howe wrote me: "During the last season (1908) and also that of 1907 this species was found breeding in the district and as near Melbourne as Doncaster. This was no doubt owing to the prevailing drought of Northern Victoria and New South Wales."

Captain S. A. White has written me "*C. superciliosus* is invariably seen in company with the preceding species, they nest together in the same tree and often within a foot of each other on the same branch, but I have never seen a case of interbreeding. This seems remarkable, for in their habits, size and everything else except colour they are identical. This is the most beautiful member of the family, but it is not so numerous in South Australia, at any rate, as the last species. Although my wife and I did not meet with the bird in Central Australia in 1913, yet I feel sure they range through this country, for it was met with in the Far North-west of South Australia in 1914 in numbers. Like the preceding species, we have met with this bird in almost every part of this State."

It will be noted that the life histories of these two species are so intermingled as to be scarcely separable and that, while the ranges are not

WHITE-BROWED WOOD-SWALLOW.

exactly as suggested by Gould, *personatus* in the west and *superciliosus* to the east alone, the former is the more abundant in the west while the latter is generally, but not always, more numerous in the eastern part of the continent. Thus Rogers has reported a few *superciliosus* from North-west Australia among thousands of *personatus*, as already recorded in connection with the previous species, and again Hall has written that Rogers stated: "In Derby (20/7/02) *A. personatus* was to be seen in thousands, while *A. superciliosus* was not numerous. A few of the males of the latter species were among flocks of the former species. Both species had left Derby 23/9/02."

Then Whitlock, on the East Murchison bird fauna, commented: "*A. superciliosus* is not very well known as a visitor to this State. In the early part of August many Wood-Swallows were migrating to the west and north-west, and a flock of over a thousand birds became weather-bound, heavy gales with rain setting in from the south-west. These were mostly *Artamus personatus*, but amongst them I detected several darker individuals of a more robust build. I managed to shoot one or two of either sex. They proved to be of the present species."

As most writers commenting on the intermingling of the species observe the lack of interbreeding, the authentic cases recorded by North need re-quoting: "Mr. North remarked that in the first edition of *Nests and Eggs of Australian Birds* (p. 44, 1889), [*i.e.*, *Austr. Mus. Cat.*, No. 12, not Campbell's better known work with the same title] he had recorded that the late Mr. George Barnard, of Coomooboolaroo, Duaringa, Queensland, had on one occasion found the adult male of *Artamus superciliosus* paired with the adult female of *A. personatus*. Mr. North then exhibited a specimen of unusual interest, a hybrid adult male, *Artamus superciliosus* $\times$ *A. personatus*, obtained by Mr. H. Greensill Barnard of Bimbi, Duaringa, Queensland, on the 9th September, 1908. Also, for comparison, adult males of *A. superciliosus* and *A. personatus*. Mr. Barnard came across a flock of *A. superciliosus* resting about five miles away from home, and among them was the hybrid, which was mated with a female of *A. superciliosus*, engaged in building a nest. It resembles *A. superciliosus* on the upper-parts, has the forehead, lores, cheeks, ear-coverts, and throat black, passing into blackish-grey on the fore-neck; remainder of under-surface ashy-grey with a slight vinous wash; under tail-coverts pale ashy-grey; over and behind the eye a distinct white eyebrow, but not extending so far on to the sides of the crown of the head, as in *A. superciliosus*. Total length 7, wing 4.85 inches."

It is probable that other cases occur among the thousands, but few have carefully looked for such instances.

THE BIRDS OF AUSTRALIA.

Thus Chandler has recorded from the Kow Plains, Victoria: "A large flock of Wood-Swallows passed over the camp on 9th September, flying in an easterly direction. They stopped for a few minutes in a flowering mallee, and were busy extracting the nectar from the flowers. The flock was composed of *A. superciliosus* and *A. personatus*. A week or two later a flock of these birds settled near camp to nest. Within a few days nests were to be seen on top of every available stump."

The technical history of this species is very slight, and the only item of special note is the fact, apparently hitherto unnoticed, that Peale described it as a new species, *selecting the same name* as Gould had used ten years before.

No forms were separated until Ingram, examining a collection of birds made by Stalker at Alexandra, Northern Territory, proposed as a new species "*Artamus phoeus*. Similar to *A. superciliosus*, but the maroon of the under-parts is much duller in colour, and of a vinaceous tint, lacking the rich chestnut of the above-mentioned bird. The under tail-coverts are also less bright, and of a lighter shade. In the female the pale coloration of the under-parts is especially noticeable. Total length 7·2 inches, culmen ·8, wing 4·8, tail 3·3, tarsus ·8."

In my "Reference List" I reduced this to subspecific rank, which is its utmost value, and gave as ranges:

Artamus superciliosus superciliosus (Gould).

Queensland, New South Wales, Victoria,
South Australia, South-west Australia.

Artamus superciliosus phaeus Ingram.

Northern Territory, North-west Australia.

I made no alteration in my 1913 "List," but later named

Campbellornis superciliosus pallida.

"Differs from *C. s. superciliosus* (Gould) in being paler. South-west Australia."

Owing to their erratic movements, the exact value of these forms is unknown, but the three may be tentatively allowed, especially as Campbell has admitted in the case of *personatus* that "Eastern birds are larger and darker (than western ones), but there is less difference between the respective females."

GENUS—AUSTRARTAMUS.

AUSTRARTAMUS Mathews, Austral Av. Rec., Vol. I,
pt. 5, p. 114, Dec. 24th, 1912. Type (by original
designation) *Artamus melanops* Gould.

THE diagnostic features I cited read "Differs from *Artamus* in its narrow and weaker bill, and weaker feet and much shorter wing; from *Campbellornis* in its shorter broader bill and shorter tail." This describes the structural features but does not signify the great difference between these forms. Thus this genus is the inland evolution from the ancestral form of "*Artamus*," and is a sedentary form showing great variation geographically.

NOTE. The types of all forms described are in my collection at Tring, unless otherwise stated.

AUSTRARTAMUS MELANOPS.

BLACK-FACED WOOD-SWALLOW.

(PLATE 477.)*

ARTAMUS MELANOPS Gould, Proc. Zool. Soc. (Lond.), 1865, p. 198, June 1st; Saint A'Becket's Pool, Central Australia.

Artamus cinereus Gould, Birds Austr., pt. vi. (Vol. II., pl. 29), March 1st, 1842; [Not *Artamus cinereus* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVII., p. 297, 1817.]
id., Handb. Birds Austr., Vol. I., p. 147, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 584; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 195, 1878; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878; *id.*, Tab. List Austr. Birds, p. 3, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 16, 1890; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 469, 1901; Hall, Emu, Vol. II., p. 58, 1902 (N.W.A.); Carter, *ib.*, Vol. III., p. 94, 1903 (W.A.); Hall and Rogers, *ib.*, Vol. VII., p. 140, 1908 (N.W.A.); Mathews, Handl. Birds Austral., p. 81, 1908; *id.*, Emu, Vol. IX., p. 12, 1909 (N.W.A.); *id.*, *ib.*, p. 61; Whitlock, Emu, Vol. IX., p. 206, 1910 (N.W.A.); Hill, *ib.*, Vol. X., p. 280, 1911 (N.W.A.); Campbell, *ib.*, Vol. XIII., p. 67, 1913 (Eggs); Orton and Sandland, *ib.*, p. 79 (W.A.); H. L. White, *ib.*, Vol. XVI., p. 225, 1917 (N.T.); Campbell, *ib.*, Vol. XVIII., p. 256, 1919; Ashby, *ib.*, Vol. XX., p. 135, 1921 (W.A.); Alexander, *ib.*, p. 166 (W.A.); Whitlock, *ib.*, p. 184 (W.A.).

Artamus albiventris Gould, Proc. Zool. Soc. (Lond.), 1847, p. 31, April 27th: Darling Downs, New South Wales, *i.e.*, Queensland; Gould, Birds Austr., pl. 28 (Vol. II., pl. 30), Sept. 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 149, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1868, p. 383; Masters, Proc. Linn. Soc. N.S.W., p. 48, 1876; Castelnau and Ramsay, *ib.*, Vol. I., p. 380, 1877; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 196, 1878; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878; *id.*, Tab. List Austr. Birds, p. 3, 1888; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 262, 1909.

Artamus melanops Gould, Proc. Zool. Soc. (Lond.), 1865, p. 198, June 1st: Saint A'Becket's Pool, Central Australia; *id.*, Handb. Birds Austr., Vol. I., p. 149 (Dec.), 1865; *id.*, Birds Austr. Suppl., pl 7, pt. 5, August 1st, 1869; Sharpe, Ornith. Miscell. (Rowley),

* The Plate is lettered *A. cinereus* and *A. tregellasi*.



H. Grönvöld. del

Witherby & Co

MICRARTAMUS MINOR.

(LITTLE WOOD-SWALLOW).

AUSTRARTAMUS CINEREUS.

(BLACK-FACED WOOD-SWALLOW).

AUSTRARTAMUS TREGELLASI.

(BLACK-VENTED WOOD-SWALLOW).

BLACK-FACED WOOD-SWALLOW.

Vol. III., p. 197, 1878; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878; *id.*, Tab. List Austr. Birds, p. 3, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 17, 1890; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 471, 1901; Lyons, Emu, Vol. I., p. 137, 1902; Le Souëf, *ib.*, Vol. II., p. 149, 1903 (N.T.); Kilgour, *ib.*, Vol. IV., p. 41, 1904 (N.W.A.); Berney, *ib.*, Vol. V., p. 78, 1905 (N.Q.); Mathews, Handl. Birds Austral., p. 81, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 259, 1909; Gibson, Emu, Vol. IX., p. 75, 1909 (W.A.); Macgillivray, *ib.*, Vol. X., pp. 17, 26, 34, 1910 (N.S.W.); S. A. White, *ib.*, Vol. XII., pp. 122, 125, 1912 (S.A.); Hill, *ib.*, Vol. XII., p. 245, 1913 (N.T.); Campbell and Kershaw, *ib.*, p. 276 (N.T.); S. A. White, *ib.*, Vol. XIII., p. 29, 1913 (S.A.); Campbell, *ib.*, p. 67 (egg); Macgillivray, Emu, Vol. XIII., p. 173, 1914 (Q.); Barnard, *ib.*, p. 207 (N.T.); *id.*, *ib.*, Vol. XIV., p. 46 (N.T.).

Artamus venustus Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 198, May, 1878: North-west Australia, collected by Elsey=Victoria River, Northern Territory; *id.*, Cat. Birds Brit. Mus., Vol. XIII., p. 18, 1890; Hall, Key Birds Austr., p. 48, 1899; Mathews, Handl. Birds Austral., p. 81, 1908; Whitlock, Emu, Vol. VIII., p. 186, 1909 (W.A.); *id.*, *ib.*, Vol. IX., p. 207, 1910 (M.W.A.).

Artamus hypoleucus Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 17, pref. May 14th, 1890: new name for *A. albiventris* Gould, pre-occupied as above; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 470, 1901; Mathews, Handl. Birds Austral., p. 81, 1908; Jackson, Emu, Vol. XII., p. 87, 1912.

Artamus florenciæ Ingram, Bull. Brit. Ornith. Club, Vol. XVI., p. 115, July 10th, 1906: Alexandra, Northern Territory; *id.*, Ibis, 1907, p. 410; Mathews, Handl. Birds Austral., p. 81, 1908; *id.*, Emu, Vol. IX., p. 68, 1909.

Artamus tregellasi Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 100, July 13th, 1911: Rockingham, West Australia.

Artamus melanops melanops Mathews, Nov. Zool., Vol. XVIII., p. 367, 1912.

Artamus melanops hypoleucus Mathews, Nov. Zool., Vol. XVIII., p. 367, 1912; Macgillivray, Emu, Vol. XVII., p. 202, 1918 (Q.).

Artamus melanops tregellasi Mathews, Nov. Zool., Vol. XVIII., p. 368; *id.*, Austral Av. Rec., Vol. I., p. 60, 1912.

Artamus melanops florenciæ Mathews, *id.*, *ib.*

Artamus melanops venustus Mathews, *id.*, *ib.*; Söderberg, Kungl. Svenska Vet. Handl., Band 52, p. 92, 1918.

Austrartamus melanops melanops Mathews, List Birds Austr., p. 235, 1913; S. A. White, Emu, Vol. XIV., p. 189, 1915; *id.*, *ib.*, Vol. XVIII., p. 23, 1918.

Austrartamus melanops hypoleucus Mathews, List Birds Austr., p. 235, 1913.

Austrartamus melanops tregellasi Mathews, *id.*, *ib.*; Carter, Ibis, 1917, p. 606.

Austrartamus melanops venustus Mathews, *ib.*; *id.*, South Austr. Ornith., Vol. 3, p. 178, 1918.

Austrartamus melanops florenciæ Mathews, *ib.*

DISTRIBUTION. Interior of Australia generally.

THE BIRDS OF AUSTRALIA.

Adult male. Crown of head and nape mouse-brown; back and scapulars smoke-brown, becoming darker towards the rump; wings dark slate-grey more or less tinged with smoke-brown on the coverts; flight-quills broadly margined with isabelline on the inner webs, the tips dark brown with pale edges and black shafts; rump, upper tail-coverts and tail black, the outer feathers of the latter broadly tipped with white, which is restricted to the inner web of the outermost feather on each side; lores, eyelids, fore part of cheeks, and chin black, the feathers on the lores and chin have hair-like tips; rectal bristles black; throat and hinder face ash-grey, becoming darker on the breast, abdomen, and sides of the body; lower flanks and thighs soot-brown; under tail-coverts white like the axillaries and under wing-coverts; under-surface of flight-quills silvery-grey; lower aspect of tail similar to its upper-surface. Eyes black, feet slate, bill bluish-white, tip black. Total length 172 mm.; culmen 15, wing 117, tail 65, tarsus 22. Figured. Collected at Normanton, Gulf of Carpentaria, Queensland, on the 29th of November, 1913.

Adult female. Similar to the adult male.

Adult. Crown of head, hind-neck, sides of neck, back, and scapulars soot-brown; wings dark slate-colour with pale edgings to the feathers; inner webs of flight-quills inclining to vinous-grey on the margins; rump, upper and under tail-coverts, thighs, and tail black with white tips to the feathers of the latter, except the outermost, where the white pattern is restricted to the inner-web; base of forehead, lores, and circle round the eye and chin black, most of the feathers bristly and hair-like, in addition to the rectal-bristles, which are also black; ear-coverts similar to the crown of the head; throat grey, becoming darker and more dusky-grey on the breast, abdomen, and sides of the body; axillaries and under wing-coverts cream-white; under-surface of flight-quills silvery-grey, becoming darker towards the tips; lower aspect of tail similar to its upper-surface. Bill bluish with black tip. Total length 207 mm.: culmen 17, wing 136, tail 75, tarsus 20. Figured. Collected at Rockingham, South of Perth, West Australia, and is the type of *Artamus melanops tregellasi*.

The sexes are alike.

Immature. Entire crown of head, from forehead to nape, dusky brown with ferrugineous shaft-lines to the feathers; mantle and back similar, but more coarsely marked and somewhat paler grey at the base of the feathers; darker and inclining to black on the lower back, rump and short upper tail-coverts, the long series of the last soot-black; upper-surface of the wings slate-grey with pale ferrugineous tips to the feathers and pale outer edges to the flight-quills, which increases in width at the base of the feathers and much more broadly on the inner webs towards the base; tail black, the five lateral feathers on each side broadly tipped with white, which is slightly fringed with black; lores, fore part of cheeks, rectal-bistles and chin black with pale shaft-lines on the last; throat, hinder cheeks and sides of neck slate-grey more or less tinged with smoke-brown—more especially on the ear-coverts; breast, abdomen and sides of body pale ferrugineous-brown with pale grey bases to the feathers, becoming darker on the lower flanks and thighs; axillaries greyish-white; under tail-coverts black; under wing-coverts white; under-surface of flight-quills silvery-grey becoming darker towards the tips; lower aspect of tail similar to its upper-surface. Bill light pinkish-olivaceous, yellowish at the sides and at the gape; legs pale greenish-slate; eyes dark brown.

Artamus cinereus. GREY-BREASTED WOOD-SWALLOW.

Eggs. Vary from three to six for a sitting; four usually found. A clutch of four is slightly swollen oval in shape, ground colour very pale pinkish-white, spotted and blotched

BLACK-FACED WOOD-SWALLOW.

with umber, reddish-brown and pale slate. Surface of shell fine, smooth and rather glossy. The clutch measures 23–24 mm. by 18.

Nest. Round and rather deep saucer-shaped ; composed of numerous rootlets, and lined with smaller fibrous roots ; usually placed in a small bush, or on top of a broken-off stump.

Artamus hypoleucus. WHITE-BELLIED WOOD-SWALLOW.

Eggs. Vary much in size and shape, and general dispositions of the markings. A clutch of four is oval in shape, rather pointed at the smaller end, ground-colour pale buffy-white, well-marked with spots and blotches of umber, pale slate and lilac, becoming closely set together towards the larger end, forming an irregular zone. Surface of shell fine, smooth and rather glossy. The clutch measures 24–25 mm. by 17.

Nest. Rather a flat saucer-shaped structure, composed of grasses, rootlets and twigs, and placed in a small bush or tree.

Artamus melanops Gould. BLACK-FACED WOOD-SWALLOW.

Eggs. Vary from three to four for a sitting, and from pointed to swollen ovals in shape. Clutch of three is oval in shape, ground-colour pinkish-white, well marked, particularly at the larger end, with reddish-brown, dull slate and lilac. Surface of shell fine and rather glossy. The clutch measures 20–22 mm. by 17.

Nest. A round, open and rather cup-shaped structure, composed of dried grasses and rootlets, lined with fine grasses. Generally placed low down in a bush.

Artamus florenciæ Ingram. NORTHERN BLACK-FACED WOOD-SWALLOW.

Eggs. Four in number for a sitting, slightly swollen ovals in shape, ground-colour pale pinkish-white, well marked with spots and blotches, particularly at the larger end, of umber, reddish-brown and pale slate. Surface of shell fine, smooth, and slightly glossy. The clutch measures 20–22 mm. by 16.

Nest. An open cup-shaped structure, composed of thin grass stems and portions of vines ; generally placed in a small tree within hand's reach of the ground.

Artamus venustus Sharpe. WHITE-VENTED WOOD-SWALLOW.

Eggs. Usually three for a sitting. A clutch of three is oval in shape, ground-colour of a pinkish-white, well spotted and blotched with umber and rich reddish-brown, pale slate and purplish-grey. Shell fine, smooth and slightly glossy. The clutch measures 22 mm. by 17.

Nest. An open cup-shaped structure, rather neatly made and composed of dried grasses and rootlets, and placed on the branch of a small tree ; frequently within hand's reach of the ground.

Breeding-season. August to December. (January and February.)

THE father of Captain S. A. White was a great ornithologist, and it is indeed fortunate for us that the son has published his life account, as although his name crops up throughout the works of Gould, a great deal of emphasis was not laid upon his achievements. The name occurs in connection with the following species in this manner. "This fine species is unlike every

THE BIRDS OF AUSTRALIA.

other known member of the genus. It is most nearly allied to *A. albiventris*, but differs from that bird in the jet-black colouring of its under tail-coverts, and from *A. cinereus* in its smaller size and the greater extent of the black on the face." The specimen from which the above description was taken has been kindly sent to me by Mr. S. White, of the Reed Beds, near Adelaide, South Australia, who informs me that it was shot by him at St. à Becket's Pool, lat. $28^{\circ} 30'$, on the 23rd of August, 1863, and who, in the notes accompanying it, says, "I have never seen this bird south. It collects at night like *A. sordidus*, and utters the same kind of call. It seems to be plentiful all over the north country, and particularly about Chamber's Creek and Mount Margaret. It feeds on the ground, soars high in the air, and clings in bunches like the others. The two sexes appear to be very similar in outward appearance, but the young are much speckled with dusky brown, particularly on the back."

Captain S. A. White, the son of the aforementioned Mr. S. White, has written me, "I have found this a common bird in the interior and from my observations have formed the idea that it is a more local bird than other members of the family, that is, it never makes big concentrated movements after food and I have never seen it on the coastal belt; about 100 miles from Adelaide seems its limit. Its habits seem very like those of other members of the family with the exception that I do not think the bird takes the long and high flights that other species do. Yet I am of the opinion that like other birds this species must have moved slowly south of late years, otherwise my father would not have had to go so far north before discovering it, seeing that he worked the country in many directions for 300 miles out from Adelaide. It does not nest in colonies like the preceding species. The nest is often much more compact and more pains taken in building, and I have often seen it decorated with small flower heads."

Under the name "*Artamus cinereus* Vieillot," Gould had written: "This bird exceeds in size all the other Australian Wood-Swallows. Its large tail, most of the feathers of which are broadly tipped with white, as well as the colouring of its plumage, at once point out its close affinity to the *Artamus sordidus* and *A. minor*. In Western Australia it is a very local but by no means an uncommon species, particularly at Swan River, where it inhabits the limestone hills near the coast, and the "Clear Hills" of the interior, assembling in small families, and feeding upon the seeds of the *Xanthorrhœa*, which proves that insects do not form the sole diet of this species; with such avidity, in fact, does it devour the ripe seeds of this grass-tree, that several birds may frequently be seen crowded together on the perpendicular seed-stalks of this plant

BLACK-FACED WOOD-SWALLOW.

busily engaged in extracting them; at other times, particularly among the limestone hills, where there are but few trees, it descends to the broken rocky ground in search of insects and their larvae. . . The sexes are alike in colour, and can only be distinguished from each other with certainty by dissection. I have remarked that specimens from Timor rather exceed in size those collected on the Australian continent, and are somewhat lighter in colour; but these variations are too slight to be regarded as specific." This is a strange statement in view of his differentiation of *A. melanops* as "unlike every other known member of the genus" yet his only characteristics are "differs from *A. cinereus* in its smaller size and the greater extent of the black on the face." I will deal with this in the technical portion of this account.

Mr. Tom Carter writes: "In your Reference List the Grey-breasted Wood-Swallow (under the name of Black-vented), *A. cinereus (melanops)*, is given as occurring in South-western Australia, in which part it has never come under my observation, but in the Gascoyne and North-west Cape districts, it is by far the commonest species of *Artamus*, occurring, in some seasons, in countless numbers. They usually make an appearance with the winter rains, and have a habit of flying at a very great elevation (at certain times), the whole flock uttering a ceaseless chorus of twitterings. Most probably at such times, which are in bright calm weather, they have ascended to feed on certain insects, which have flown high. The chief breeding months are August and September, in which months, during a good season, their nests are constantly seen, built in bushes, usually four to five feet above the ground. Three eggs is the usual clutch and they vary much in colouring. Nests are built of a few small twigs and lined with grass or flower stalks, and are somewhat shallow."

Alexander has, however, written regarding the birds of Perth: "Winter visitor. Small parties are met with in the neighbourhood of Perth, especially on the open coastal limestone hills. Gilbert met with them (*breeding*) over 80 years ago in the neighbourhood of Fremantle, as recorded in Gould's 'Handbook.' I have seen this species on a number of occasions in July, August, September and October."

Mr. J. P. Rogers has written me: "At Marngle Creek this was a common species, apparently all in adult plumage. At Mungi it was not numerous, still, small parties are seen every day. In this (Mungi) district the number of individual birds of each species is small; taking this into consideration this is one of the common birds of Mungi. This I believe to be a resident species in Kimberley, and is largely a ground feeder and is often seen in

THE BIRDS OF AUSTRALIA.

company with *Lalage tricolor*; they do not actually associate, but use the same feeding grounds and is a very common species in Kimberley.

"This bird feeds on the cultivated fig in Wyndham district. This I found by dissection. On May 16, 1909, numerous in all classes of country between Wyndham and Wild Dog Creek, 170 miles south. On Nov. 26, 1908, I found the first nest of the season which was placed in a horizontal fork of a small "broad leaf" wattle, eight feet from ground and partly hidden by a few leaves. Both birds were at the nest and were putting a few finishing touches to it; one repeatedly settled in the nest as if to try it and after a few moments would fly away for more material; both birds brought material, but only the one (apparently the female), which tried the fit of the nest, seemed to build, but of this I could not make certain. I examined the nest before leaving at 8 a.m. when the birds were away; it was empty. At 9 a.m. I returned and as the bird flew off the nest I again looked into it and there was one egg. On the 30th the nest contained three eggs, but on Dec. 4 eggs were gone and nest deserted. On Nov. 30 at 8 a.m., I found another nest with one egg; at 10 a.m. there was still only one; but birds were at the nest on each visit and one was sitting on it. On Dec. 1 nest deserted, egg gone. On Dec. 12 another nest was found with three eggs, both parents at the nest; on the 16th the nest contained one young and two eggs; young is blind and has feather tracts thinly covered with down; next day three young hatched and on the 21st young gone and nest abandoned. Again on Dec. 17 a nest was found with one young and three eggs; on the 18th two young and two eggs; on 19th three young and one egg, all young blind and thinly covered with down. On the 22nd there were still only three young and one egg; the young are still blind, quills of all feather tracts except head are well through. On Nov. 27 a nest with two eggs was seen on Nine Mile Ridge, which was built in a small tree beside the road 8 feet from the ground and was placed in a perpendicular fork; both birds were at the nest. On Dec. 20 I saw a bird take a large grasshopper on the wing, seizing it with its feet, and carry it to a perch near by."

Rogers' previous notes had been recorded by Hall: "There appears to be a wide range in the nesting; for I found eggs on 7th February, 1900, and 31st August of the same year. On 16th January, 1901, I saw a nest being built. On 1st February I saw several broods of young. They are feeding largely upon something within the blossoms of *banhinia* trees. The flowers are infested with insects. On 22/9/01 I observed a cluster within a rent in a tree. They were roosting, and sheltering leeward in a high wind. This is the first time I have seen this species in a bunch."

BLACK-FACED WOOD-SWALLOW.

Berney has recorded from the Richmond District, North Queensland: "*A. melanops*. A constant resident, nesting here regularly. They pair in August, and I have seen young leave the nest early in September, and from then on I have found eggs up to 5th February. The clutch is generally three, but on two occasions I have seen four. On one occasion I saw a pair eating honey, and mentioned the instance in connection with the two preceding species, but reported it as *A. cinereus*, which was incorrect, as it should have been *melanops*. We have not *A. cinereus* in these parts. I have seen as many as sixteen *melanops* together, but they do not flock."

Macgillivray writing of the Barrier Range, New South Wales, noted: "Occasional pairs of Black-faced Wood-Swallows (*Artamus melanops*) were seen. This species, unlike the Masked or White-browed, is neither migratory nor gregarious, and is very local in its habits, being seen always either in pairs, or, after the nesting season, in families. It thus tends to form local variations, a condition not possible with the other species mentioned, which migrate regularly from north to south to a greater or less extent, according to food supply, and never permanently inhabit any one locality."

Later he wrote regarding Queensland birds: "Frequently noted throughout the Gulf country. This species is not migratory," and Barnard wrote "Fairly common" on the Brunnette Downs.

Writing of the birds on the East Murchison, Whitlock recorded: "Grey-breasted Wood-Swallow (*Artamus cinereus*). A single specimen obtained at Lake Violet."

"White-vented Wood-Swallow (*Artamus venustus*). This was the most generally distributed Wood-Swallow around Lake Way. Occasionally I saw small parties, but more often I saw pairs, many of which are, I believe, resident. This species is a late breeder, and I did not get any nests and eggs until I went to Milly Pool, where I obtained several handsome clutches."

On the Pilbarra Goldfields Whitlock recorded: "*A. venustus*. The common Wood-Swallow inland. On the Upper Coongan I found several nests with full clutches of the handsome eggs."

Carter has recorded: "A few pairs of this Wood-Swallow were seen on Dirk Hartog Island on 30th April, 1916, and on many subsequent dates during both visits. A nest containing two half-grown young was noted about four feet above the ground in a bush, 14th October, 1916. These birds were not observed on the Peron, but as the species is usually a winter visitor in the Gascoyne and mid-west districts, it had probably left the Peron before I arrived there on 11th November, 1916. Mathews' List of the Birds of Australia, 1913, gives the range of this species as South-west Australia.

THE BIRDS OF AUSTRALIA.

This is misleading, as it is essentially a mid-west bird, and has never been observed by me anywhere south of the Swan River, nor at Broome Hill. It is a species that likes open country, and is not likely to occur in the prevailing forests of the south-west, where its place is taken by the Wood-Swallow (*A. cyanopterus*). From my personal observations, extending over more than thirty years, this is one of the commonest birds between the North-west Cape and Gascoyne River after heavy winter rains. It is sometimes seen after summer rains." Later, he added "Were seen in the Gascoyne and Minilya districts on all three trips, but were most plentiful in 1916, when many nests containing eggs or young were seen in September. A nest with three eggs was seen at the Minilya on 9th September, 1911."

Mr. Edwin Ashby writes: "My opportunities of watching these birds in South Australia have been few, as it is a distinctly northern species. I have specimens shot at Morchard which is about as far south as I think it occurs. In Nov., 1920, I found the subspecies *A. venustus* very common at Wongara and Watheroo sand plains in Western Australia. In common with other members of the genus these were in the habit of settling on some low tree or bush in little companies, and soaring off from time to time after insects with that particular grace of flight that forms the especial charm of the Wood-Swallows. In the first week of Nov., 1920, the young were fully fledged, in fact as perfect in their flight as their parents, but still showed the speckled plumage."

This is the exception in the Wood-Swallows as regards its scientific history judged technically. The present form is apparently non-migratory and variable in a peculiar manner, which variation is more or less geographical as well as individual. Gould, familiar with the birds in Australia, was misled into magnifying the differences observed, and it is probable that to-day we are no wiser than Gould. The reason for this statement will be seen after the perusal of the history here detailed.

Gould admitted as a West Australian bird, *Artamus cinereus* Vieillot, and then he described *Artamus albiventris*, based on two specimens, one from the Darling Downs (Queensland), the other from northward of that locality; he distinguished this as "smaller, with white under tail-coverts and the lighter colour of the lower part of the abdomen." Of *A. cinereus* he had written "under tail-coverts jet-black." He then added *A. melanops* from South Australia as "unlike every other known member of the genus. . . differs from *A. albiventris* in the jet-black under tail-coverts, and from *A. cinereus* in its smaller size and greater extent of black on the face."

In 1878, Sharpe reviewed the genus and admitted *A. cinereus* Vieillot; *A. albiventris* Gould, "a species with which I am unacquainted; *A. melanops*

BLACK-FACED WOOD-SWALLOW

Gould—I am very doubtful about the species, as we have in the Museum two specimens received from Mr. Gould as his *Artamus melanops*; and these two individuals I can hardly separate from *A. cinereus*. They have a little more black on the face, and narrower white edgings to the under tail-coverts; this appears to be the best character; but, as I have already hinted, it appears to be somewhat variable. At the same time this species is so little known that perhaps *A. venustus* may turn out to be only the adult stage.”

Then he admitted *A. perspicillatus* Bonap. from Timor and added *Artamus venustus* sp. n. “Five specimens of this bird are in the Museum, brought by Dr. Elsey during the expedition to North-western Australia. Some of them were determined by the late Mr. G. R. Gray as *A. perspicillatus*, and some as *A. cinereus*. They appear to me to be neither the one nor the other. The white tips to the under tail-coverts and the two entirely black central tail feathers sufficiently prove that they are not *A. perspicillatus*. From *A. cinereus* the females of the north-western bird are more difficult to tell; but they are smaller, and do not have the black so extended on the cheeks; and this character seems to prevent their being *A. melanops*.”

When he prepared the Catalogue of Birds in the British Museum, he noted that Gould's name *albiventris* was preoccupied and renamed Gould's species *hypoleucus*, but otherwise no change was made.

Then Ingram proposed as a new species from Alexandra, Northern Territory, *Artamus florenciæ*, stating: “Similar to *A. melanops*, but with the black under tail-coverts much more broadly tipped with white. General colour uniformly paler and more ashy than in *A. melanops*, in which species the back is browner. The under-surface is also conspicuously paler, being of a clear pearl-grey, instead of drab. Total length 7·3 inches, culmen ·8, wing 4·8, tail 3, tarsus ·85.”

It will be noted that Ingram considered *melanops* to have the under tail-coverts tipped with white, though Gould had stated “jet-black.” When Hall received Rogers' series he noted: “In two males and two females there is a trace of a frontal line above the base of the culmen; in other specimens there is no trace of it except before the lores. In two adult males, the under tail-coverts are broadly edged with white, while in another they are narrowly edged with white. I am disposed to sink *A. melanops* and *A. venustus* in favor of this species, and give it a wider distribution.” Gould also stated for this species jet-black under tail-coverts.

The conclusion that *A. venustus* Sharpe and *A. melanops* Gould were the same as *A. cinereus* Vieillot, had been given by Ramsay in 1888 who,

THE BIRDS OF AUSTRALIA.

however, stated "*Artamus albiventris* Gould, a good species in which the under tail-coverts are *white* both in the *young* and in the *adults*. Localities: Herbert River, Rockingham Bay and Gulf District."

Reference to the original description given by Vieillot showed that the name *cinereus* was given to a bird from Timor and that such a bird did occur at Timor. Although Gould said he could not distinguish specific characters the Timor bird was recognised as a distinct species under the name *perspicillatus* Bonaparte. The specimens showed the description to be applicable to the Timor bird, and I concluded that *cinereus* Vieillot should be used for it and *perspicillatus* be regarded as a synonym, and that the Australian *cinereus* needed a name. I, therefore, proposed *Artamus tregellasi* as a new species, describing the bird from Rockingham, South-west Australia. The series, although numerous, was not sufficient to determine the exact variation, but I could not regard any of the named Australian forms as distinct species, especially as all local workers had differently concluded. In my "Reference List" I therefore arranged the forms thus:—

Artamus melanops melanops Gould.

Interior (South Australia and New South Wales).

Artamus melanops hypoleucus Sharpe.

Queensland.

Artamus melanops tregellasi Mathews.

South-west Australia.

Artamus melanops florenciæ Ingram.

Northern Territory.

Artamus melanops venustus Sharpe.

North-west Australia.

With the alteration of the genus name to *Austrartamus* these were admitted without comment, save the addition of Victoria to the first named, in my List in 1913.

In 1914, Hellmayr published an account of the Birds of Timor, but continued the usage of *A. perspicillatus* for the Timor Bird without comment on my action. I, therefore, drew attention (Austral Av. Rec., Vol. II., pt. 5, p. 105, Sept. 24, 1914) thus: "Hellmayr also on p. 41 has used *Artamus perspicillatus* Bonaparte for a Timor Wood-Swallow. For an Australian species, *Artamus cinereus* Vieillot was commonly used until I rejected it on account of its description from Timor and my inability to separate from the descriptions Vieillot's and Bonaparte's species. Hellmayr does not discuss my action, so I can only conjecture that he has overlooked this also."

BLACK-FACED WOOD-SWALLOW.

In the Novit Zool., Vol. XXIII., pp. 96-111, April, 1916, appeared an article entitled "Weiteres zur Avifauna von Timor, von C. E. Hellmayr" and dated Sept. 15th, 1914.

Therein Hellmayr from examination of the type in Paris (previous to the war) corrected his error and acknowledged the Timor bird to be *A. cinereus*, but considered the Australian forms to be subspecies only.

As all the Australian forms are of inland distribution and sharply separated geographically from the Timor forms, and as no intergradation occurs, I do not regard this as a scientific conclusion and separate the Australian forms as a distinct entity from the Timor form.

The bird figured and described on p. 246, from Normanton, Gulf of Carpentaria, can be called

Austrartamus melanops Normani, subsp. n.

GENUS—ANGROYAN.

- ANGROYAN Illiger, Abh. K. Akad Wissensch
 Berlin, 1812, p. 231, 1816 (ex Temminck
 MS.). Type (by original designation) .. *Loxia cyanoptera* Latham.
Pseudartamus Mathews, Austral Av. Rec., Vol.
 I., pt. 5, p. 114, Dec. 24th, 1912. Type
 (by original designation) *Loxia cyanoptera* Latham.

WHEN I separated the species of Wood-Swallows generically I wrote of this form: "Differs from *Austrartamus* in its much shorter, broader bill and weaker feet."

This, the Wood-Swallow, is much more distinct than the above slight structural features suggest, and is distinguished by being the only Wood-Swallow that ranges into Tasmania, its distribution being extra-tropical Australia.

Soon after I introduced the name *Pseudartamus*, and I had recognised that *Loxia cyanoptera* Latham was applicable to this bird, my friend Dr. C. W. Richmond wrote me that in the little-known tract above cited, Illiger had used the name *Angroyan* as of Temminck for this species. I thereupon made rectification as above.

ANGROYAN CYANOPTERUS.

WOOD-SWALLOW.

(PLATE 476.)*

LOXIA CYANOPTERA Latham, Index Ornith. Suppl., p. xlvi. (after May 30), 1801 : Port-Jackson, New South Wales.

Loxia cyanoptera Latham, Index Ornith. Suppl., p. xlvi., 1801.

Blue-winged Grosbeak Latham, Gen. Synops. Birds, Suppl. II., p. 197, 1801.

Turdus sordidus Latham, Index Ornith. Suppl., p. xliii. (after May 30) 1801 : New Holland = New South Wales.

[Not *Turdus sordidus* P.L.S. Muller, Nat. Syst. Suppl., p. 143, 1776.]

Sordid Thrush Latham, Gen. Synops. Birds., Suppl. II., p. 186, 1801.

Artamus lineatus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVII., p. 297, Dec. 27th., 1817 : new name for "*T. sordidus* Latham."

Ocypterus albovittatus Valenciennes, Mém. Mus. d'Hist. Nat. (Paris), Vol. VI., p. 23 (before Aug.), 1820 : "Timor" errore = New South Wales ; Gould, Synops. Birds Austr., pt. i. (pl. 1), 1837.

Artamus albovittatus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 210, 1827.

Leptopteryx albovittata Wagler, Syst. Avium Leptop., sp. 5, 1827.

Artamus sordidus Gray, Genera Birds, Vol. I., p. 285, 1845 ; Gould, Birds Austr., pt. vi. (Vol. II., pl. 27), March 1st, 1842 ; *id.*, Handb. Birds Austr., Vol. I., p. 143, 1865 ; Diggles, Orn. Austr., pt. XIII., 1867 ; Ramsay, Ibis, 1866, p. 327 ; *id.*, Proc. Zool. Soc. (Lond.), 1875, p. 584 ; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 199, 1878 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1879 ; Legge, Paper Proc. Roy. Soc. Tasm., 1886, p. 241, 1887 : 1887, p. 92, 1888 ; Ramsay, Tab. List Austr. Birds, p. 3, 1888 ; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 19, 1890 ; Hall, Key, Birds Austr., p. 48, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 471, 1901 ; Dove, Emu, Vol. II., p. 19, 1902 (Tas.) ; McClymont, *ib.*, p. 23, (Tas.) ; H. E. Hill, *ib.*, p. 162, 1903 (Vic.) ; A. G. Campbell, *ib.*, p. 208 (King Island) ; MacLaine, *ib.*, Vol. III., p. 63, 1903 (Bass Strait) ; Hill, *ib.*, p. 107 (W.A.) ; Fletcher, *ib.*, p. 110 (Tas.) ; Milligan, *ib.*, Vol. IV., p. 10, 1904 (W.A.) ; A. G. Campbell, *ib.*, p. 124, 1905 (Vict. and Tas.) ; *id.*, *ib.*, Vol. V., p. 144, 1906 (Kangaroo Island) ; Batey, *ib.*, Vol. VII., p. 11, 1907 (Vic.) ; Chisholm, *ib.*, Vol. VIII., p. 215, 1909 (Vic.) ; Gibson, Emu, Vol. IX., p. 75, 1909 (W.A.) ; Fletcher, Emu, Vol. IX., p. 252, 1910

* The Plate is lettered *Pseudartamus cyanopterus*.

THE BIRDS OF AUSTRALIA.

(Tas.); Ingle, *ib.*, Vol. X., p. 147, 1910; Littler, Handb. Birds Tasm., p. 72, 1910; Gubanyi, *ib.*, Vol. X., p. 119, 1910 (N.S.W.); Broadbent, *ib.*, p. 235 (N.Q.); Dove, *ib.*, Vol. XII., p. 48, 1912 (Tas.); S. A. White, *ib.*, Vol. XIII., p. 29, 1913 (S.A.); Chandler, *ib.*, p. 41 (Vic.); Orton & Sandland, *ib.*, p. 79 (W.A.); S. A. White, *ib.*, Vol. XIV., p. 142, 1915 (Mallacoota); Cheney, *ib.*, p. 211 (Vic.); Purnell, *ib.*, Vol. XV., p. 43 (Vic.); Elliott, *ib.*, p. 182 (W.A.); Dove, *ib.*, p. 242, 1916 (Tas.); Campbell and Barnard, *ib.*, Vol. XVII., p. 28, 1917 (N.Q.); Dove, *ib.*, Vol. XVIII., p. 201, 1919 (Tas.); Cleland, *ib.*, p. 281 (N.S.W.); Campbell, *ib.*, Vol. XX., p. 148, 1921; Alexander, *ib.*, p. 166 (W.A.); Dove, *ib.*, p. 236 (Tas.).

Artamus tenebrosus Sharpe, Hist. Coll. Nat. Hist. Brit. Mus., Vol. II., p. 135, 1906; [Not *Turdus tenebrosus* Latham, Index Ornith., p. XLII., 1801.]

Mathews, Handl. Birds Austral., p. 81, 1908; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 247, 1909; Dove, Emu, Vol. IX., pp. 30, 37, 1909 (Tas.); Hall, *ib.*, p. 130, 1910 (S.A.); Howe, *ib.*, p. 232, 1910 (Vic.); Dove, *ib.*, Vol. X., p. 135, 1910 (Tas.); Cleland, *ib.*, Vol. XI., p. 87, 1911 (Food); S. A. White, *ib.*, Vol. XII., p. 4, 1912 (S.A.); Wilson, *ib.*, p. 37 (Vic.); Austin, *ib.*, p. 42 (N.S.W.).

Artamus cyanopterus Mathews, Nov. Zool., Vol. XVIII., p. 368, 1912; Ashby, Emu, Vol. XVI., p. 231, 1917 (S.A.).

Pseudartamus cyanopterus Mathews, List Birds Austr., p. 236, 1913; Belcher, Birds Geelong, p. 296, 1914; Mathews, South Austr. Ornith., Vol. II, p. 58, 1915; S. A. White, Emu, Vol. XV., p. 161, 1916 (S.A.); *id.*, *ib.*, Vol. XVIII., p. 23, 1918 (S.A.).

Angroyan cyanopterus Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 99, 1914; *id.*, *ib.*, Vol. III, p. 67, 1916.

Angroyan cyanopterus cyanopterus Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 131, 1915; *id.*, *ib.*, Vol. III, p. 67, 1916.

Angroyan cyanopterus perthi Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 131, Jan. 28th, 1915; *id.*, *ib.*, Vol. III, p. 67, 1916: Perth, West Australia.

DISTRIBUTION. Australia generally and Tasmania.

Adult female. General colour both on the upper and under-surface smoke-brown, becoming much darker on the rump and upper tail-coverts of the upper parts and the vent and under tail-coverts of the under-surface; upper-surface of wings dark lead-colour; second, third, and fourth primary-quills margined with white on the outer webs, inner webs whitish at the base, becoming darker towards the tips; tail black, broadly tipped with white on the lateral feathers which is restricted to the inner web on the outermost feather on each side; rictal-bristles black; lores and fore part of eye-lid black, some of the feathers hair-like, or bristly in appearance; axillaries and under wing-coverts white; under-surface of flight-quills dark silvery-grey; lower aspect of tail blackish-brown, some of the feathers tipped with white. Eyes coffee-brown, feet grey-black, bill bluish-white with tip black. Total length 185 mm.; culmen 15, wing 126, tail 74, tarsus 19. Figured. Collected in the Stirling Ranges, West Australia, on the 18th of August, 1911.

Adult male. Similar to the adult female.

Immature. General colour of the upper-surface dark smoke-brown with greyish-white shaft-streaks, including the top of the head, upper sides of the face, sides of neck, hind neck, mantle, back and rump; upper tail-coverts almost uniform and darker

WOOD-SWALLOW.

than the back ; wings blackish-slate colour with a pale dot at the tip of some of the coverts, the second, third and fourth primary-quills white on the outer webs ; the tips of all the flight-quills have pale edgings ; tail black, all the feathers except the two middle ones are white at the tips which are narrowly fringed with black ; lores and fore part of the cheeks blackish-brown ; rictal-bristles and those of the interramel space black ; under-surface dusky-grey varied by smoke-brown, including the throat, breast, abdomen, sides of the body and under tail-coverts, somewhat darker on the last ; axillaries and under wing-coverts white ; under-surface of flight-quills grey, becoming darker towards the tips ; lower aspect of tail similar to its upper-surface ; eyes dark brown ; bill brown, yellowish on the sides and at the gape ; legs pinkish-slate.

Eggs. Vary from three to four for a sitting, and frequently they are zoned with markings towards the smaller ends. A clutch of four is oval in shape, ground-colour of a yellowish-white, well spotted and blotched with umber and dull slate. Surface of shell fine and slightly glossy. Clutch measures 22 mm. by 17-18.

Nest. An open and rounded structure, composed of thin dried twigs, grass and rootlets, and placed from about 4 feet up to 30 feet from the ground, sometimes in a thick bush or in the naked forked limb of a tree, or on top of a stump, or inside loose bark on the side of a tree. The lining consists of finer materials, and frequently thin rootlets are used for the purpose. Dimensions over all are 4 to 5 inches by $2\frac{1}{2}$ inches in depth ; egg cavity, $2\frac{1}{2}$ inches across by nearly 2 inches deep.

Breeding-season. September to January.

THE recent unfortunate complications with regard to the scientific name of this bird, the "Wood-Swallow" of Gould and many others, will be best detailed after the account of its life history has been recorded. Consequently Caley's notes, as recorded by Vigors and Horsfield, are probably the earliest, and these read : "It is called *Wood-Swallow* by the colonists, but also *Blue-Bill*. I have occasionally seen as many of these birds flying about in some places as I ever did *Swallows*, which they closely imitate in their mode of flight. This occurred where the ground had been cleared and abandoned. Their resting places were on the trunks of trees which had been felled. I do not think them migratory ; if they are so, they depart for no great length of time."

Gould wrote : "No species of the Australian *Artami* with which I am acquainted possesses so wide a range as the present ; the whole of the southern portion of the continent, as well as the island of Tasmania, being alike favoured with its presence. The extent of its range northward has not yet been satisfactorily ascertained, beyond the certainty that it has not hitherto been received in any collection from the north coast. It may be regarded as strictly migratory in Tasmania, where it arrives in October, and after rearing at least two broods departs again in a northern direction. On the continent of Australia it arrives rather earlier, and departs later ; but a scattered few remain throughout the year in all the localities favourable to their habits, the number being regulated by the supply of

THE BIRDS OF AUSTRALIA.

insect food necessary for their subsistence. . . This Wood-Swallow must, I think, ever be a general favourite with the Australians, not only from its singular and pleasing actions, but from its often taking up its abode and incubating near the houses, particularly such as are surrounded by paddocks and open pasture lands skirted by large trees. It was in such situations in Tasmania that, at the commencement of spring, I first had an opportunity of observing this species; it was then very numerous on all the cleared estates on the north side of the Derwent, about eight or ten being seen on a single tree, and half as many crowding one against another on the same dead branch, but never in such numbers as to deserve the appellation of flocks; each bird appeared to act independently of the other; each, as the desire for food prompted it, sallying forth from the branch to capture a passing insect, or to soar round the tree and return again to the same spot; on alighting it repeatedly throws up one of its wings, and obliquely spreads its tail. At other times a few were seen perched on the fence surrounding the paddocks, on which they frequently descended, like Starlings, in search of *coleoptera* and other insects. The form of the wing of the *Artamus sordidus* at once indicates that the air is its peculiar province; hence it is, that when engaged in pursuit of the insects which the serenity and warmth of the weather have enticed from their lurking places among the foliage, to sport in higher regions, this species displays itself to the greatest advantage. But the greatest peculiarity in the habits of this bird is its manner of hanging together in clusters from the branch of a tree, like a swarm of bees."

Mr. T. P. Austin has written from Cobbora, New South Wales: "The Wood-Swallow is a resident species in this district, but a little more numerous during the warmer months. Never met with in thick scrub; preferring the open forests and 'ringbarked' country, sometimes met with in small flocks, but more often in pairs perched upon dead branches, stumps, fences, etc., from which perch they sally forth after any passing insect. While perched the tail is always swaying with a twist first to one side then to the other. They are also often found feeding on the ground. It is a very useful destroyer of insects. Although I have kept bees in my garden for many years, I have never known them to be troubled by any birds of the present family, yet I know they are very destructive at some apiaries. Only once have I seen them clustered like a swarm of bees, this one very cold afternoon in August, 1908, and just as a storm was approaching; there appeared to be not more than a dozen birds, but when I disturbed them, I could see there must have been at least fifty. Their usual note is a very sharp twitter, but they also

WOOD-SWALLOW.

have a feeble pleasant little song, which is somewhat similar to that of *Hirundo neoxena*, but it is seldom uttered. Their nests are cup-shaped and more substantial than those of the White-browed, they are formed of thin dry twigs and lined with roots. The clutch is usually two, rarely three, and eggs may be found from the last week in September till the middle of December."

Captain S. A. White's notes read: "A familiar bird within a hundred miles of the coast of this state, but upon going into the interior it becomes rare or disappears. I am sorry to say they are not nearly so numerous as they were in years gone by, and this is a loss to the state, for they are most useful birds. I have known them to wipe out a great area of grasshoppers which were eating all greenstuff in front of them. They are the only members of the family which I have seen clinging in the strange formation like bees to a limb: this takes place at dusk or on a misty, cold dark day, when they will cling in a mass to the sheltered side of a tree trunk or limb. I had a strange experience when speaking at a country town upon the economic value of our native birds. An apiarist in a large way said this bird destroyed his bees in great numbers and that he had been shooting the birds. I argued with him, but he would not be convinced. A week or so later I received a letter from this beekeeper in which he said he was sorry for the wrong he had done the birds. My arguments had raised doubts in his mind and, upon making further investigations, he had found the *Artamus* were taking the *bee moth* at dusk as they left the hives and that great good was being done by the birds clearing the hives of this most destructive moth to the bees. As far as South Australia is concerned, this bird is becoming scarcer in numbers each year."

Mr. Edwin Ashby sends me: "This Wood-Swallow has a very extensive range, being present in all parts of South Australia I have visited, and I have found it common in the New England district of New South Wales, near the Queensland border, at an altitude of over 2,000 ft. In the neighbourhood of Adelaide, S.A., they come down to the plains in winter and are seen in quite large flocks at that season in the park lands round the city. During the nesting season they keep more to the hills, where it is one of the commonest birds. They are very destructive to bees, perching near the hives and swooping off from time to time to catch some luckless bee. This habit has led to their often being called 'Bee-eaters,' and apiarists wage incessant war upon them. I have several times on cold early

THE BIRDS OF AUSTRALIA.

spring mornings seen these birds 'bunch' together, forming a large black ball round the bough of some lofty gum tree. I think they probably hang in these bunch-like masses for warmth; I have watched the bunch break up and it only takes a very few moments for the whole of the birds to be on the wing."

Mr. F. E. Howe has sent me the following note: "The Wood-Swallow is very plentiful and may be met with at all times of the year. They begin to nest in September and eggs and young can be seen as late as January. At Ringwood, on Sept. 28th, 1907, in company with Messrs. Ross and Mattingby, a flock of about sixty birds were hanging in a big bunch in an elbow of a tree. This is the second time I have noticed this peculiarity and the position chosen was identical. Nests are to be found in every conceivable position and at heights varying from two to thirty feet. One pair had chosen an old nest of the *Grallina*. The young are born blind and are clothed in grey down. The bill and feet are black and the gape and mouth yellow. Mr. Ross secured one that had recently left the nest. The head, back and underparts were of a dark grey strecked with light rufous; the shoulder was white, the first primaries were dark grey, but in the next two the outer edge is white. Upper tail-coverts very dark as were also the under tail-coverts, the lower half of which were white. During the breeding season the bird is very pugnacious, chasing all and sundry that approach the site of the nest. The food is generally obtained on the wing, but they not infrequently alight on the ground to seize it. At Ringwood a nest contained three eggs that were chipping, and we concluded the female helped the embryo by chipping off tiny fragments of the shell."

Mr. L. G. Chandler writes: "This bird is common with us throughout the year. After the morning's feed, a single bird, or a pair nestled together on a limb, may be heard singing softly and sweetly. I have noticed in December a dozen or more of these birds, young and old, roosting for the night in a bunch on the side of a tree. In the autumn and winter months when they are generally seen in flocks they appear to have a leader, who directs them in certain things. One morning in March, when the clouds looked dark and threatening, I was interested in a small flock which were feeding close to the ground. They usually chose a branch or stump, and darting out to catch a passing insect return to the same spot with a graceful soar and rapid flaps. When perched the tail is worked with a perpendicular and horizontal motion. Suddenly the birds flew into a neighbouring tree, where they remained for a while, with an occasional individual

WOOD-SWALLOW.

twittering softly. Presently, as one bird—no doubt at a signal from the leader—the whole flock rose and flew off into the higher atmosphere, where they hawked for insects during the remainder of the day. An hour or two later, the clouds rolled away and the day was sunny and warm. While examining a squeaking young one, I have been attacked by the Wood-Swallows in force, several pairs of birds arriving to drive me away from the nest. They make quick darts at the intruder, but both sexes being of gentle disposition, are not persistent in their attack. I found two young about a week old which had the irides brown, gape lemon-yellow, bill light yellow, legs blueish; feathers along head and back brown, just breaking; primaries and secondaries cased in blue quills, tail-quills minute. Three species, *A. cyanopterus*, *C. superciliosus* and *C. personatus* are generally found nesting in the same clump of timber, the last named being here the rarest of the three.”

Mr. Tom Tregellas also wrote: “I was out at Sassafras and noticed a large cluster of Wood-Swallows on the leese of a rough-barked, just dead box tree. Getting close for examination I had a good look at them, and found that each bird clung to the bark alone as close to its neighbour as possible, *but not one of them clung to its neighbour*. I then disturbed them and watched them re-form into another cluster with the same result. After satisfying myself completely that my observations were correct I fired at the clump and killed six birds as specimens, all of which on skinning proved to be *females*. This, then, gives rise to another question. Were they *all* females in the swarm, and is it only the females that swarm? The birds are in great plenty here and remain with us most of the year, some of them, in fact, never leaving at all.”

Mr. H. S. Dove wrote me: “This Wood-Swallow musters every autumn in some paddocks near the beach at this place and remains about there for a few weeks before crossing the Straits to the mainland. A large proportion of these are young birds, the plumage being browner and more mottled than with the old. Parties of the young are very fond of sitting on a horizontal pine branch, snuggling up together in twos and threes like Lovebirds and thus protecting each other against the cool winds. This season I first noticed the mustering on 11th March, and they were there still on 1st April; they sit about on the trees and posts and fences, sailing thence every now and then to the ground for an insect, sometimes remaining there for a time, at others returning directly to the perch with their quarry. Grasshoppers are very plentiful and these appear to form a large portion of their sustenance; at this period almost all the food is obtained on the ground. I noticed one fly to its perch with a grasshopper, a part of which (the head apparently) it rejected, then gulped down the rest, legs and all.”

THE BIRDS OF AUSTRALIA.

Mr. Frank Littler also wrote me: "Is a migratory species, leaves Tasmania during winter. Sometimes it arrives early in August, at others not till September. Return migration proceeds from end of March to middle of April; none seen after April. The Tasmanian form is said to be larger than the mainland one. This species has the very peculiar habit of occasionally hanging in clusters on the underside of a bough. Its food consists of insects, most of which are captured while on the wing. The movements of this Wood-Swallow when on the wing are graceful in the extreme. Its broad pinions are eminently suited for sailing over and among the trees. Occasionally it ascends to great heights until it becomes a tiny speck in the blue sky. Even when almost quite out of sight its not unpleasant reedy notes can be distinctly heard. When at rest it has a curious habit of every now and then flicking its tail from side to side."

A good and complete account appeared in the South Australian Ornithologist, Vol. II., pt. 4, Oct., 1915, pp. 87-90, from which I quote: "It is a resident bird in South Australia, though, perhaps, not so plentiful in winter as in spring and summer; possibly there is a partial migration or they may wander in search of better food supplies. Odd pairs have been known to stay in the same locality for several years. They like open forest country rather than thick scrub. When perched they have a habit of lifting one wing, partially opening it as though to stretch it and closing it again; this is repeated many times. After nesting time they congregate in parties of from 10 to 40 in number, and occasionally in much larger flocks. They do not nest in companies; each pair keeps its own beat, and drives away all intruders of the same species. At this time they will attack any birds or animals, large or small, which come near the nest, and will even attack man, swooping swiftly down upon him with harsh cries, and snapping the bill. Food. This is mostly taken upon the wing, much after the manner of swallows, but they also search the bark of trees for insects, clinging to it with the feet, and using the out-spread tail as a support. Occasionally they take their food upon the ground. It is not uncommon to see them searching the flowers of *eucalypta*, *hakea*, and other flowering shrubs, but whether for the nectar or for insects is not known. With this possible exception the food consists entirely of insects of all classes. They are especially fond of bees, and for that reason are not beloved by the apiarist. Flight. Graceful and gliding; very like that of swallows. Song. While hawking for insects or sitting upon a perch they utter a single, rather harsh and plaintive note frequently repeated. In the spring they have a continuous twittering song, soft and musical, but so low pitched as not to be heard at any great distance. When singing they have a habit of

WOOD-SWALLOW.

wagging the partly outspread tail from side to side. . . Two, sometimes three, broods are reared in the season (which) lasts from August to December."

Mr. Tom Carter's observations read: "*Artamus cyanopterus*. The Wood-Swallow occurs through the South-west, but was never observed in North-west Australia. They were noted as common about Kellarberin in January, 1903. The nests are usually placed at a higher elevation than those of other species of this genus, usually from 15 to 25 feet above the ground and often towards the end of a limb, so not easily approached. About Broome Hill, and I think generally, the breeding season is late, being from October until the end of December, and sometimes extending into January. The clutch of eggs is three or four. Fresh eggs in nests were noted on Nov. 11, 1906, Dec. 11, 1906; Oct. 7 to Nov. 1, 1907, several nests with eggs. Nov. 29, 1908, fresh eggs; Oct. 27, 1912, nest completed, no eggs. Feb. 12, 1906, noted recently fledged young. Dec. 15, 1907, young in nest. Dec. 12, 1911, recently fledged young."

In the *Emu*, Vol. VIII., p. 215, 1909, Chisholm wrote: "I quote a note taken at the time of observation last summer:—'What would seem to be a strange systematic trait of periodical changing of localities has taken place among the Wood-Swallows here. Last year these birds were represented by practically only one species—viz., the Wood-Swallow (*A. sordidus*). This season things have changed. Owing to the drought up north, the White-browed (*A. superciliosus*) and rarer Masked (*A. personatus*) species are here in considerable numbers whilst a Wood-Swallow (*A. sordidus*) is a comparative rarity. In Oct.-Nov. of this year I found White-brows and their nests (but no Masked) in two or three distinct areas. Now (Dec.-Jan.) the White-brows have almost totally disappeared from these areas, and in their place the Masked species has proportionately increased. Query—Should this be regarded as an accidental happening, or an habitual trait? I think the former theory more probable among migratory birds such as these.' After the sudden influx of Wood-Swallows detailed above, the birds have disappeared as suddenly as they came, and there are now but few of either species to be noted hereabouts, therefore, if the strange locality-changing noted last summer were again going on, it would hardly be noticeable. I have watched closely for any indication of the occurrence, but, seeing none, am convinced that the happening was accidental or capricious."

For many years this, the "Wood-Swallow," was known by the technical name of *Artamus sordidus*, not a really nice name if choice were allowed. It had received a couple of other names, but Latham's *Turdus sordidus* was the earliest and on the score of priority alone was tenable.

THE BIRDS OF AUSTRALIA.

However, when Sharpe had the Watling drawings brought to his notice he observed a drawing of a Wood-Swallow and thereupon suggested a change in the customary designation. This powerful authority influenced me and I sanctioned the change, but further consideration showed that Sharpe's conclusions were wrong. I have had the figure which Sharpe examined reproduced, but I here quote the description given by Latham of his Black-crowned Thrush. "This species is about six inches long; bill pale blue; legs black; back and wings black; but the quills are edged with white; the chin is black, from thence to the vent white; but the sides of the body next the wings, and the crown of the head are brown. Inhabits *New Holland*; frequently seen about *Port Jackson*, in *New South Wales*."

This species has never at any time "the chin is black, from thence to the vent white." Sharpe suggested this was a state of immaturity, but this species is striped when young and even then is never white underneath. Upon reviewing the subject the long-customed name *sordidus* was found to be preoccupied so that another name had still to be found. I recognised the following as undoubtedly given to this bird. Latham described a "Blue-winged Grosbeak. Size of a *Bunting*; length seven inches; general colour cinereous-brown; round the base of the bill as far as the eyes considerably darker; wings wholly of a deep blue, but the base of the outer quills white, forming a long white spot on the outer edge of the middle of the wing; tail the same, but paler than the wings; the ends of all the feathers white; bill and legs blue. Inhabits *New South Wales*; found at *Port Jackson*. From a drawing by General Davies." Latham named this *Loxia cyanoptera*.

In the *Austral Avian Record*, Vol. IV., pp. 114-122, 1920, is an account of General Davies and some of his drawings.

As regards the subspecific forms of the species Gould wrote: "I may here observe, that specimens from Swan River, South Australia, and New South Wales present no difference either in size or colouring, while those from Tasmania are invariably larger in all their admeasurements, and are also of a deeper colour."

A. G. Campbell, making comparisons of Victorian with Tasmanian birds, gave measurements

Victoria	Total length	6·8,	culmen	·52,	wing	5·0,	tail	2·9,	tarsus	·65.
----------	--------------	------	--------	------	------	------	------	------	--------	------

Tasmania	,,	,,	6·75	,,	·55	,,	4·9	,,	2·85	,,	·7
----------	----	----	------	----	-----	----	-----	----	------	----	----

and wrote: "More difference than might be expected exists between the Tasmanian and the mainland birds. Both the bill and the tarsus of the former are longer slightly, while the outer web of the fourth primary, which in the mainland specimen is, together with the second and third, broadly

WOOD-SWALLOW.

marked with white, is only slightly edged. The white markings on the tips of the tail feathers are smaller in size, but these possibly, and maybe the markings on the primaries as well, vary with the age of the specimen."

Later, reporting on the Birds of Kangaroo Island, A. G. Campbell noted: "This bird was found through most parts of the island. Seeing it is supposed to be migratory, it should not differ much from specimens from other parts; but it does differ in being of a darker tone, and in having very little white on the tail tip."

I have constantly examined good series of Tasmanian and S.A. birds without having found any constant differences, but I have named

Angroyan cyanopterus perthi.

"Differs from *A. c. cyanopterus* in its general darker colour. Perth, West Australia."

GENUS—MICRARTAMUS.

MICRARTAMUS Mathews, Austral Av. Rec., Vol. I,
pt. 5, p. 114, Dec. 24th, 1912. Type (by
original designation) *Artamus minor* Vieillot.

THIS very different form of Wood-Swallow was diagnosed thus: "Differs from *Pseudartamus* in its still weaker bill, though broad, and weaker feet and shorter wings and tail."

The bill is broadly triangular, sharp tipped, swollen basally with the breadth at base almost equal to length, the rictal bristles very small, but the bill is a regular development of the Artamoid style on the exactly opposite direction to that of *Campbellornis*. The birds are small and more compact for aerial work, the legs being very delicate, and the claws long and curved for clutching prey, not perching.

Order PASSERIFORMES.

Family ARTAMIDAE.

No. 583.

MICRARTAMUS MINOR.

LITTLE WOOD-SWALLOW.

(PLATE 477.)

ARTAMUS MINOR Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVII., p. 298, Dec. 27th, 1817: New South Wales.

Artamus minor Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVIII., p. 298, 1817; Gould, Birds Austr., p. vi. (Vol. II., pl. 28), March 1st, 1842; *id.*, Handb. Birds Austr., Vol. I., p. 146, 1865; Ramsay, Ibis, 1866, p. 327; *id.*, Proc. Zool. Soc. (Lond.), 1875, p. 584; Sharpe, Ornith. Miscell. (Rowley), Vol. III., p. 201, 1878; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 179, 1878; *id.*, Tab. List Austr. Birds, p. 3, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 20, 1890; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 474, 1901; Hall, Emu, Vol. II., p. 59, 1902 (N.W.A.); Le Souëf, *ib.*, p. 149, 1903 (N.T.); Carter, *ib.*, Vol. III., p. 94 (N.W.A.); Berney, *ib.*, Vol. V., p. 78, 1905 (N.Q.); Mathews, Handl. Birds Austral., p. 81, 1908; Whitlock, Emu, Vol. VIII., p. 186, 1909 (W.A.); Mathews, *ib.*, Vol. IX., pp. 68, 240, 1909 (N.W.A.); North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 263, 1909; Broadbent, Emu, Vol. X., p. 235, 1910 (N.Q.); Hill, *ib.*, p. 280, 1911 (N.W.A.); Macgillivray, *ib.*, Vol. XIII., p. 173, 1914 (N.Q.); Barnard, *ib.*, p. 212 (N.T.); *id.*, *ib.*, Vol. XIV., p. 46, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 225, 1917 (N.T.); Campbell and Barnard, Emu, Vol. XVII., p. 28, 1917 (N.Q.); Macgillivray, *ib.*, p. 202, 1918 (N.Q.); Whitlock, *ib.*, Vol. XX., p. 184, 1921 (W.A.).

Ocypterus fuscatus Valenciennes, Mem. Mus. d'Hist. Nat. (Paris), Vol. VI., p. 24, before Aug., 1820: New South Wales.

Leptopteryx minor Wagler, Syst. Av. Lepto., sp. 6, 1827.

Ocypterus minor Gould, Synops. Birds Austr., pt. I., pl. I., 1837.

Ocypterus fuscus "Valenc." Gray, Genera Birds, Vol. I., p. 285, 1845: error only.

Artamus minor minor Mathews, Nov. Zool., Vol. XVIII., p. 368, 1912.

Artamus minor derbyi Mathews, *ib.*, Jan. 31st, 1912: Derby, North-west Australia; *id.*, Austr. Av. Rec., Vol. I., p. 60, 1912; Söderberg, Kungl. Svenska Vet. Handl., Band 52, p. 97, 1918.

Micrartamus minor minor Mathews, List Birds Austr., p. 236, 1913.

Micrartamus minor derbyi Mathews, *ib.*; *id.*, South Austr. Ornith., Vol. 3, p. 178, 1918.

THE BIRDS OF AUSTRALIA.

Micrartamus minor S. A. White, Trans. Roy. Soc. South Austr., Vol. XXXVIII., p. 432, 1914 (Central).

DISTRIBUTION. Northern Australia, range undetermined.

Adult female. Crown of head, back, and scapulars smoke-brown; wings blackish slate-colour; inner webs of flight-quills somewhat paler than the outer ones and whitish edges at the tips; upper tail-coverts and tail glossy black with white, or smoke-white tips to the feathers of the latter; lores and eye-lids black, the feathers of the former bristly in texture; fore part of cheeks and chin also black; throat, breast, abdomen, and sides of body coffee-brown; thighs and under tail-coverts black; axillaries and under wing-coverts pale ash-grey; under-surface of flight-quills dark silver-grey; lower aspect of tail similar to its upper-surface. Eyes and feet black, bill blue with black tip. Total length 145 mm.; culmen 11, wing 98, tail 58, tarsus 14. Figured. Collected on the Bafel Group, Norman River, Gulf of Carpentaria, Queensland, on the 30th of April, 1914.

Adult male similar to the adult female.

Immature male. General colour of the upper-surface soot-black with smoke-brown streaks and edgings to the feathers, including the top of the head, sides of face, sides of neck, nape, hind-neck, back, scapulars, rump, and upper tail-coverts; wings blackish tinged with slate-grey, smoke-brown tips to the coverts, and whitish tips to the flight-quills, the inner webs of the last somewhat paler; tail blackish with white at the tips of all except the two middle feathers and the outermost one on each side; throat, breast, abdomen, sides of body, and under tail-coverts similar to the upper surface; axillaries and under wing-coverts pale grey slightly intermixed with white; under-surface of flight-quills dark glossy grey; lower aspect of tail similar to its upper-surface; eyes black; feet and bill grey. Collected at Normanton, Queensland, on the 16th of March, 1914.

Juvenile. General colour of the upper parts blackish intermixed with dark chestnut, including the top of the head, sides of the face, sides of neck, hind-neck, back, upper wing-coverts and upper tail-coverts, the chestnut edgings almost obsolete on the last; flight-quills slate-grey margined with cinnamon at the tips; tail slate-black, the apical portion for the most part white or greyish-white; throat, breast, abdomen, and under tail-coverts dark smoke-brown, darker and inclining to black on the last; under-surface of flight-quills dark glossy grey; lower aspect of tail for the most part greyish-white with dark margins to the feathers.

Nest. Placed in a hole in a branch about 4 feet from the ground or a small hole in the side of the trunk. Constructed of a little pile of paper bark leaves laid parallel with each other with a hollow in the middle. Outside measurements 3 inches by 1½ deep.

Eggs. Clutch three. Whitish, with blotches, chiefly at the larger end, of brown and light grey. 18 mm. by 14-15 (N.W.A.).

Artamus minor Vieill. LITTLE WOOD-SWALLOW.

Eggs. Three eggs usually form the sitting, and vary from ovals to swollen ovals in shape. Ground colour varies from white to yellowish-white. Clutch of three eggs, oval in shape, rather pointed at the smaller end, ground colour pale creamy-white, spotted with umber, dark reddish-brown, and pale to dark slate, and forming a well defined zone at the larger end. Surface of shell fine and smooth, and with very little gloss, some eggs of this species having more gloss than others. The clutch measures 19-20 mm. by 14.

LITTLE WOOD-SWALLOW.

Nest. Is a small shallow structure, and frequently placed in the hollow limb of a tree or on a stump, or in the crevice of a rocky bank or cliff. Composed of rootlets and twigs. Sometimes when in a hollow only a few dead leaves and rootlets constitute the nest.

Artamus minor derbyi Mathews. Nest usually in crevices of a cliff.

Breeding-season. October to January.

ALTHOUGH Gould was not the describer of this species his notes are probably the earliest, albeit scanty and unimportant. Thus he wrote: "In its structure and in the disposition of the markings of its plumage, this species offers a greater resemblance to the *Artamus sordidus* than to any other member of the group; the habits of the two species are also very similar; if any difference exists, it is that the present bird is still more aerial, a circumstance indicated by the more feeble form of the foot, and the equal, if not greater, development of the wings. During fine weather, and even in the hottest part of the day, it floats about in the air in the most easy and graceful manner, performing in the course of its evolutions many beautiful curves and circles, without the least apparent motion of the wings, the silvery whiteness of which, as seen from beneath, and the snowy tips of its widespread tail strongly contrast with the dark colouring of the other parts of its plumage. I found the *Artamus minor* abundant on the Lower Namoi, particularly on the plains thinly studded with the *Acacia pendula* and other low trees in the neighbourhood of Gummel-Gummel, where it had evidently been breeding, as I observed numerous young ones, whose primaries were not sufficiently developed to admit of their performing a migration of any distance; besides which, they were constantly being fed by the parents, who were hawking about in the air over and around the trees, while the young were quietly perched close to each other on a dead twig."

Captain S. A. White has written me that he only met with this bird once and that was in the Macdonnell Ranges, which he has recorded: "We met with these rare birds in Ellery Creek. Our camel train was passing up the sandy bed of the creek, with high rugged cliffs on either side, a small party of seven or eight birds were seen, but through my riding camel playing up and making much noise only one was secured. I think this is the furthest south a skin has been collected in the Northern Territory."

Mr. Tom Carter's notes are: "The Little Wood-Swallow (*A. minor*) appears to be restricted to northern areas. They were fairly common along the rugged ranges that extend from Point Cloates to the North-west Cape (Vlaming Head is the north end of ranges), almost every precipitous gorge having a few pairs of the birds which do not appear to fly very far from their vicinity. I never succeeded in obtaining any nests or eggs, as the birds

THE BIRDS OF AUSTRALIA.

built in places very difficult to reach, such as deep crevices of precipitous cliffs or holes in the roofs of the large caves. On August 26th, 1913, when at the Yardie Creek (N.W. Cape area) two pairs of these birds were observed constantly flying in and out of a cave situated on the face of one of the high cliffs. I succeeded in scrambling up to the floor of the cave, but could not reach the nests which were in crevices in the roof, about twelve feet above my head. I could see the heads of the young birds over the edges of nests, and the old birds kept bringing them food, as I stood below them."

Mr. J. P. Rogers' notes read: "At Marngle Creek this was a very rare species, only three birds being seen between the 19th and 28th of May, 1911. At Mungi none were seen. On my return to Derby the first of this species was seen twenty-five miles south of the Fitzroy River. This species was numerous at Derby in November and December, 1910. Is sparingly distributed in Kimberley, but is numerous on the cliffs of the Grand Range, West Kimberley."

Whitlock's account is fairly complete and is here quoted: "I first encountered this rather rare Wood-Swallow at Gorge Creek (on the Pilbarra Goldfield) where it haunted the rocky hillsides. I afterwards secured three specimens on the Upper Coongan, at a still more rocky locality. I refrained from shooting any more, in the hope of getting eggs, though I could see I should have some time to wait before I should have a chance, the breeding organs at this period (July) being very small. It was not until the end of September that I found my first nest. I was watching a pair of *Collyriocincla* in a very rocky and timbered creek some 3 miles from the main river. I had followed one of the Thrushes up a very rocky side creek, when I observed a Little Wood-Swallow skim right up to the precipitous face of a cliff and then back again. I thought I could detect something like a nest in a very small cleft. I climbed to the spot, and there, in a cavity hardly big enough to admit my hand, was a loosely constructed nest of bits of spinifex pressed into the cleft by the weight of the bird, and with just an apology for a cup. It contained one egg. I left it, and returning in a week's time secured a pair. Lower down the creek I observed a second pair of birds, and I located their nest in the hollow spout of a small gum. I eventually took three eggs from this nest. Still lower down this creek, and where the rocky sides had developed into a massive precipice, I could see another pair of birds skimming about. . . This Wood-Swallow never seems to be away from rocks. It is by no means timid, and flies right up to and perches within a few feet of the intruder examining the nest. It has a very pleasing song, resembling that of the Swallow (*Hirundo neoxena*). On the wing its small size renders identification easy. The two central and

LITTLE WOOD-SWALLOW.

outer tail feathers being uniform in colour, in contrast with the white tips of the remaining feathers, are also an aid to identity, being plainly visible in flight."

Berney has written: "A few of these interesting little birds are to be seen all through the year. Although I have never seen them nesting about Richmond (N. Queensland), I have found a nest with two squabs in December at Homestead on the Campaspe River."

Macgillivray simply states: "Fairly common throughout the Gulf country."

Barnard records: "Twenty miles W. from Borroloola, Northern Territory. Several nests of the Little Wood-Swallow (*Artamus minor*) were found in holes in the sandstone cliffs, but they all contained young."

It is somewhat extraordinary that this little sedentary species does not show very decided subspecific differences over its range.

In my "Reference List" I named

Artamus minor derbyi.

"Differs from *A. m. minor* in having a paler head and mantle. Derby, North-west Australia."

and in my 1913 "List" I included

Micrartamus minor minor (Vieillot).

Queensland, New South Wales.

Micrartamus minor derbyi (Mathews).

North-west Australia, Northern Territory.

At the present time to the distribution must be added West Australia and Central Australia.

FAMILY "PRIONOPIDÆ."

THE birds classed by Sharpe in *Colluricincla* were placed by him in the family *Prionopidæ* and widely separated from the *Pachycephaline* species with which I suggest they should be compared. I noted this in connection with the *Pachycephaline* groups but could not at that time make the necessary readjustment on account of the preparation of the work.

I find that many years ago Hartert, who is world-famed for his genus lumping, was dissatisfied with the above association as he has recorded "the motley crew of '*Prionopidæ*' which is an artificial assemblage of rather divergent genera, mostly *Laniidæ*." (*Nov. Zool.*, Vol. IX., p. 438, footnote, 1902.)

Gould placed the genus next to *Pachycephala* and wrote: "Like the last group, the present is strictly confined to Australia . . . they have many characters in common with the *Pachycephalæ*, which they also resemble in their actions, food, economy and nidification. They are neither Shrikes nor Thrushes, but are most nearly allied to the former; they are insect feeders to a very great extent, but occasionally partake of mollusks and berries. . . Their voice is a loud whistle, some parts of which are not devoid of melody, particularly the loud swelling notes."

It may also be observed that when Sharpe wrote his "Review of recent attempts to Classify Birds," he discarded this family, apparently lumping the species in the family *Laniidæ* of which he wrote: "The ossification of the olfactory capsule and the spine like process on the posterior end of the palatines are characters almost confined to the *Laniidæ* alone. The palate and nasal aperture in the skull of the Wood-Shrikes, which I formerly kept distinct under the heading of *Prionopidæ*, will have to be carefully examined. Some of the genera may have to be located with the Flycatchers."

Sharpe revived the family in the Handlist Birds as another waste paper basket, and as far as Australian Ornithology is concerned it may at once be rejected, as only two groups, the *Colluricincloid* series and *Grallina*, are there referred. The former appear to be very closely related to the *Pachycephalids* and the latter is also a relative of the "*Monarcha*" Flycatchers. Some New Guinea *Colluricincloids* have been classed as *Pachycephala* and *vice versa*, and others have been thrown into the "*Timeliidæ*." The immature plumage stages show the close alliance and every field naturalist has drawn attention

PRIONOPIDÆ.

to the exact resemblance in habits. I have been unable to find any remarkable difference in structure in any way and as above noted the colour changes are of the same nature. A family *Pachycephalidæ* would easily include all the forms from Australia that have been classed in *Colluricincla* and probably study of more material, showing plumage change along with that of the pterylosis and osteology, would cause the attachment of others.

FAMILY—PRIONOPIDÆ.

GENUS—COLLURICINCLA.

COLLURICINCLA Vigors and Horsfield, Trans.

Linn. Soc. (Lond.), Vol. XV., p. 213, Feb.

17th, 1827. Type (by monotypy) .. *C. cinerea*=

Turdus harmonicus Latham.

Also spelt—

Colluriocinclæ Gray, List Genera Birds, p. 36, 1840.

Collyriocinclæ Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 289, 1877.

Collyriocichla Sharpe, Handl. Gen. Sp. Birds Brit. Mus., Vol. IV., p. 269, 1903.

Collurisoma Swainson, Fauna Amer. Boreal., pp. 110, 171, "1831"=Feb., 1832.

Nomen nudum? error for *Colluricincla*.

Pnigocichla Cabanis, Mus. Heine, Vol. I., p. 66 (after Oct. 23rd), 1851:

New name for "*Colluricincla* V. & H."

LARGE Thrush-like birds with long stout laterally compressed bills, long wings, long square tails and short stout legs and feet.

The bill is longer than the head, stout, strongly laterally compressed with the tip hooked and posteriorly notched, the culmen little curved and semi-keeled; the nostrils are oval apertures placed in anterior portion of slight nasal groove, scarcely more than a depression which is almost entirely hidden by a bunch of projecting nasal bristles; rictal bristles small; under mandible stout, depth of both mandibles at the base greater than the width; the interramal space small, triangular and feathered, gonys a little curved.

The wing is long, with the first primary short, shorter than the secondaries, about half the length of the second which is equal to the eighth and longer than the secondaries; the third to sixth subequal and longest, the seventh and eighth a little shorter respectively.

The tail is long and straight, scarcely emarginate.

The legs are short and stout, the anterior part strongly scutellate with eighth scutes, the hind portion bilaminate; the inner toe and claw is equal to the middle toe alone, the outer a little longer than the inner; hind toe stronger, equal to inner toe but claw much stouter and longer, and hind toe and claw a little less than middle toe and claw.

Key to the Species.

Vent reddish buff	..	..	..	..	..	..	<i>C. rufiventris.</i>
Vent light colour, upper surface dark, bill small	..					..	<i>C. harmonica.</i>
Upper surface light, bill large	..					..	<i>C. brunnea.</i>

Order PASSERIFORMES.

No. 584.

Family PRIONOPIDÆ.

COLLURICINCLA HARMONICA.

GREY SHRIKE-THRUSH.

(PLATE 478.)

Turdus harmonicus Latham, Index. Ornith. Suppl., p. xli. (after May 30th), 1801 : New South Wales.

Port Jackson Thrush White, Journ. Voy. New South Wales, p. and pl. 157, 1790 ; Latham, Gen. Synops., Suppl. II., p. 183, 1801.

Harmonic Thrush Latham, Gen. Synops., Suppl. II., p. 182, 1801.

Turdus harmonicus Latham, Index Ornith. Suppl., p. xli., 1801.

Turdus badius Latham, Index Ornith. Suppl., p. xli. (after May 30th), 1801 : New South Wales.

Colluricincla cinerea Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 214, Feb. 17th, 1827 : New South Wales.

Lanius saturninus Nordmann, in Erman's Reis., Nat. Atlas, p. 14 (pref. Aug. 11th), 1835 : Sydney, New South Wales.

Colluricincla strigata Swainson, Anim. in Menag., p. 283, Dec. 31st, 1837 : Tasmania.

Colluricincla harmonica Gray, Genera Birds, Vol. I., p. 295, 1845 ; Gould, Birds Austr., pt. 23 (Vol. II., pl. 74), June, 1846 ; *id.*, Handb. Birds Austr., Vol. I., p. 220, 1865 ; Diggles, Orn. Austr., pt. VII., 1866 ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 290, 1877 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878 ; *id.*, Tab. List Austr. Birds, p. 5, 1888 ; Hall, Key Birds Austr., p. 10, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 88, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 92, 1902 ; Hill, Emu, Vol. II., p. 162, 1903 (Vic.) ; Le Souëf, *ib.*, Vol. III., p. 185, 1904 (Vic.) ; A. G. Campbell, *ib.*, Vol. IV., p. 115, 1905 (Vic. and Tas.) ; *id.*, *ib.*, Vol. V., p. 141, 1906 (Kangaroo Island) ; Batey, *ib.*, Vol. VII., p. 5, 1907 (Vic.) ; Austin, *ib.*, p. 29 (N.S.W.) ; Mathews, Handl. Birds Austral., p. 81, 1908 ; Cleland, Emu, Vol. IX., p. 222, 1910 (Food) ; Dove, *ib.*, Vol. X., p. 136, 1910 (Food) ; Broadbent, *ib.*, p. 236 (N.Q.) ; Wilson, *ib.*, Vol. XII., p. 37, 1912 (Vic.) ; S. A. White, *ib.*, p. 127, (S.A.) ; Chandler, *ib.*, Vol. XIII., p. 41, 1913 (Vic.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 28, 1917 (N.Q.) ; S. A. White, *ib.*, Vol. XVIII., p. 23, 1918 (S.A.) ; Cleland, *ib.*, p. 282, 1919 (N.S.W.) ; Ramsay, *ib.*, Vol. XIX., p. 5, 1919 (N.S.W.) ; Jackson, *ib.*, p. 267, 1920 (N.S.W.) ; Le Souëf and Macpherson, *ib.*, Vol. XX., p. 88, 1920 (N.S.W.).



H. Grönvold. del

Witherby & Co

COLLURICINCLA HARMONICA.
(GREY SHRIKE-THRUSH).

GREY SHRIKE-THRUSH.

Colluricincla rectirostris Jardine and Selby, Illustr. Ornith., Vol. IV., pl. xxxi., "1839" = ? Feb. 22nd, 1840 : Tasmania ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 291, 1877 ; Legge, Papers and Proc. Roy. Soc. Tasm., 1886, p. 239, 1887 ; Ramsay, Tab. List Austr. Birds, p. 5, 1888 ; Hall, Key Birds Austr., p. 11, 1899 ; Campbell, Nests and Eggs, Austr. Birds, Vol. I., p. 90, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 94, 1902 ; A. G. Campbell, Emu, Vol. II., p. 205, 1903 (King Island) ; Littler, *ib.*, Vol. III., p. 23 (Tas.) ; Fletcher, *ib.*, p. 50 (Tas.) ; MacLaine, *ib.*, p. 192, 1904 (Tas.) ; A. G. Campbell, *ib.*, Vol. IV., p. 118, 1905 (Vict. and Tas.) ; Dove, *ib.*, Vol. VI., p. 19, 1906 ; *id.*, *ib.*, Vol. VII., p. 97, 1907 ; Legge, *ib.*, p. 144, 1908 ; Mathews, Handl. Birds Austral., p. 82, 1908 ; S. A. White, Emu, Vol. VIII., p. 205, 1909 : Flinders Island ; Littler, Handb. Birds Tasm., p. 16, 1910 ; Thompson, Emu, Vol. XI., p. 39, 1911 ; Mellor and White, *ib.*, Vol. XII., p. 164, 1913 : Flinders Island.

Colluricincla selbii Gould, Birds Austr., pt. 32 (Vol. II., pl. 77), Sept. 1st, 1848 : Tasmania ; *id.*, Handb. Birds Austr., Vol. I., p. 224, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878 ; Lord, Emu, Vol. XIX., p. 106, 1919 (Tas.).

Turdus pallidus Peale, United States Expl. Exped., Vol. VIII., pp. xvi., 86 (in or before October), 1848 : "Near Valparaiso" error = Sydney, New South Wales *vide* Cassin, U.S. Expl. Exped. Birds, 2nd ed., p. 142, 1858.

[Not *Turdus pallidus* Gmelin, Syst. Nat., pt. II., p. 815, April 20th, 1789.]

Colluricincla superciliosa Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 50, Feb., 1876 : Cape Grenville, Queensland ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878 ; *id.*, Tab. List Austr. Birds, p. 5, 1888 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 96, 1902 ; Mathews, Handl. Birds Austral., p. 82, 1908 ; H. L. White, Emu, Vol. X., p. 341, 1911 (N.Q.) ; Barnard, *ib.*, Vol. XI., p. 27 (N.Q.) ; Macgillivray, *ib.*, Vol. XVII., p. 202, 1918 (N.Q.).

Collyriocincla harmonica subsp. *halmaturina* A. G. Campbell, Emu, Vol. V., pt. 3, p. 140, Jan. 1st, 1906 : Kangaroo Island.

Colluricincla harmonica harmonica Mathews, Nov. Zool., Vol. XVIII., p. 369 (1912) ; *id.*, List Birds Austr., p. 237, 1913.

Colluricincla harmonica victoriae Mathews, Nov. Zool., Vol. XVIII., p. 369, Jan. 31st, 1912 : (Olinda) Victoria ; *id.*, Austral Av. Rec., Vol. I., p. 60, 1912 ; *id.*, List Birds Austr., p. 237, 1913 ; Belcher, Birds Geelong, p. 298, 1914 ; S. A. White, Emu, Vol. XVI., p. 14, 1916 (S.A.).

Colluricincla harmonica oblita Mathews, Nov. Zool., Vol. XVIII., p. 369, Jan. 31st, 1912 : Inkerman, (South) Queensland ; *id.*, Austral Av. Rec., Vol. I., p. 60, 1912 ; *id.*, List Birds Austr., p. 237, 1913.

Colluricincla harmonica strigata Mathews, Nov. Zool., Vol. XVIII., p. 369, 1912 ; *id.*, List Birds Austr., p. 237, 1913.

Colluricincla harmonica pallescens Mathews, Nov. Zool., Vol. XVIII., p. 369, Jan. 31st, 1912 : Cairns, (North) Queensland ; *id.*, List Birds Austr., p. 237, 1913 ; *id.*, South Austr. Ornith., Vol. 2, p. 58, 1915.

THE BIRDS OF AUSTRALIA.

Colluricincla harmonica superciliosa Mathews, Nov. Zool., Vol. XVIII., p. 370, 1912; *id.*, List Birds Austr., p. 237, 1913.

Colluricincla harmonica zamba Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 46, April 2nd, 1912: Kangaroo Island.

Colluricincla harmonica halmaturina Mathews, List Birds Austr., p. 237, 1913.

DISTRIBUTION. Eastern Australian from Cape York to South Australia: Kangaroo Island and Tasmania.

Adult male. Crown of head, sides of face, nape, and sides of neck slate-grey with a tinge of olive-brown on the crown; mantle, back, and scapulars olive-brown; outer margins of upper wing-coverts and flight-quills slate-grey, shafts and inner webs blackish-brown with whitish edges on the basal portion of the latter; rump and upper tail-coverts pale slate-grey; tail similar to the back but more grey and less olive; rictal-bristles black with white bases; lores and fore-part of eyelid white, many of the feathers bristly in texture and have black hair-like tips; chin and throat greyish-white and also black hair-like tips to the feathers; fore-neck, breast, and sides of body grey, narrowly streaked with pale brown and tinged with olive; thighs grey; abdomen and under tail-coverts whitish; axillaries, under wing-coverts, and inner margins of flight-quills below greyish-white; remainder of quill-lining brown with glossy reflections; lower aspect of tail similar with white shafts to the feathers. Eyes brown, feet leaden-black, bill black. Total length 247 mm.; culmen 21, wing 134, tail 104, tarsus 32. Figured. Collected on the Barron River, near Cairns, North Queensland, on the 25th of July, 1912.

Adult female. Similar to the male, but the bill pale and the shaft-streaks on the under-surface more distinct.

Adult male. Crown of head deep slate-colour with black shaft-lines which are whitish towards the base; sides of face, sides of neck, and hind-neck similar but no shaft-lines; mantle, back, and scapulars coffee-brown; outer aspect of wings, including the wing-coverts and flight-quills slate-grey, the central portion of the coverts and the inner webs of the flight-quills blackish-brown; upper tail-coverts and tail deep slate-grey with black shafts and obsolete cross-bars to the feathers of the latter; rictal-bristles black; lores greyish-white, many of the feathers having black hair-like tips; throat, breast, abdomen, sides of body and thighs dusky slate-grey, paler and inclining to greyish-white on the vent and under tail-coverts; axillaries and under wing-coverts dove-grey; under-surface of flight-quills dark brown with glossy reflections; lower aspect of tail greyish-brown with white shaft-lines. Eyes rich brown, feet slaty-grey; bill black. Total length 220 mm.; culmen 21, wing 127, tail 103, tarsus 31. Figured. Collected on Kangaroo Island, South Australia, on the 12th of December, 1911. And is the type of *C. h. zamba*.

Immature female. General colour of the upper-surface dark bronze-brown, including the top of the head, back, scapulars, and wings, with dark shaft-lines to the feathers on the crown of the head and a slight tinge of slate-grey; inner-webs of flight-quills dark brown with buff margins; rump, upper tail-coverts, and middle tail-feathers slate-grey, the outer ones pale brown, slightly edged with buffy-white on the inner webs; rictal-bristles black; supraloral streak, a line over the eye, and sides of face chestnut; lores whitish with black hair-like tips to the feathers; chin and throat whitish, streaked with greyish-brown, many of the feathers have black hair-like tips; centre of breast similar but darker; abdomen and under tail-coverts greyish white with dark shaft-lines; sides of body grey tinged with tawny; thighs also grey; axillaries and under wing-coverts white; inner margins of the flight-quills below pale buff, remainder of quill-lining hair-brown; lower aspect of tail

GREY SHRIKE-THRUSH.

pale greyish-brown with white shaft-lines. Wing 121 mm. Figured. Collected at Bushy Park, Tasmania, in March, 1886.

Fledglings. "Have the upper-parts greyish-brown; the back, scapulars, upper wing-coverts, and secondaries distinctly tinged with olive; upper wing-coverts externally edged with rufous; feathers round the eye and a superciliary stripe pale rufous; throat, fore-neck and chest dull greyish-white, passing into pure white on the breast and abdomen, all the feathers having a broad dusky-brown streak down the centre." (North.)

Collyriocichla harmonica Lath. HARMONIOUS THRUSH.

Eggs. Three usually form the full setting, and only on rare occasions are more than that number met with, four and five eggs being very rare. In shape they vary from ovals, to pointed, swollen, and rather rounded ovals. Ground-colour varies from pearly-white to pale creamy-white, and from very speckled and spotted specimens to beautifully and heavily blotched forms. A typical clutch of three is rather swollen oval in shape, ground-colour white, spotted and blotched, particularly towards the larger end, with light to dark olive and olive-brown, and pale slate markings. Surface of shell, rather fine, smooth and glossy. Clutch measures 28-30 mm. by 21.

Nest. Is a large cup-shaped structure, and placed in a variety of situations, frequently the upright thick fork of a tree is selected for the purpose, or the hollow portion of a tree, then again the top of an old stump is sometimes chosen, or a small bushy tree, and instances are recorded where the nest has been well hidden in the centre of a thick clump of Mistletoe (*Loranthus*) growing on the forest trees. The nest is constructed chiefly of long strips of bark, frequently quite a large quantity being used, as well as long wiry roots and grass, and these encircle the nest frequently, and make a good thick rim to it. The inside is in most cases lined with a neat and well-matted layer of very fine roots or grass. Dimensions across over all, 6-7 inches; egg cavity 3 to 3½ inches across; depth of nest inside, 2 to 2½ inches; depth of nest over all, 3 to 5½ inches. The nest is sometimes found within four or five feet of the ground, and up to a height of forty feet or more.

The northern form has :—

Eggs. Two to three for a setting. They vary much in size and also in shape, from ovals, rather pointed at one end, to swollen and rather rounded ovals.

A clutch of three, in shape stout oval; surface smooth and very glossy; colour pure white, blotched and spotted all over, but more thickly at the larger end, with markings of blackish-brown and grey, the former predominating. The clutch measures 25 mm. by 20.

Nest. A stout structure, composed of strips of bark and lined with grass-stems, built in a cluster of small twigs growing from a tree in forest country, and placed twenty-five feet from ground.

The Tasmanian form has :—

Eggs. Three usually from the setting. A clutch of three is swollen oval in shape, ground-colour white, speckled and spotted with light to very dark olive and olive-brown, and round spots of slate scattered rather sparingly. The markings become more numerous towards the larger end. Surface of shell rather fine, smooth and glossy. The clutch measures 31 mm. by 23.

Breeding season. August to December.

THE BIRDS OF AUSTRALIA.

THE first Australian "Singing Bird" to be figured and recorded, this fine bird has a long history, but its beginning is not well known.

Thus in White's *Journal of a Voyage to New South Wales*, published in 1790, a fine plate is given of the "Port Jackson Thrush," and on p. 157 opposite, under date May, 1788, is written: "The *Port Jackson Thrush*, of which a plate is annexed, inhabits the neighbourhood of Port Jackson. The top of the head in this species is blueish-grey; from thence down the hind part of the neck, and the back, the colour is a fine chocolate-brown; the wings and tail are lead colour, the edges of the feathers pale; the tail itself pretty long, and even at the end; all the under-parts from chin to vent are dusky white, except the middle of the neck, just above the breast, which inclines to chocolate. The bill is of a dull yellow; legs brown."

No Latin name was given to this until Latham in his *Index Suppl.*, p. xli, gave *Turdus harmonicus* to the Harmonic Thrush described as follows: "Length nine inches; bill and legs horn colour; plumage on the upper-parts pale brown, on the under whitish, with a slender brown line down the shaft of each feather; wings and tail dusky-black. Inhabits *New Holland*; called from its note, which is harmonious, the *Port Jackson Thrush*, but seems different from the following one, which goes by that name in White's *Voyage*." He added for the same species the name *Turdus badius* on the same page.

Not recognising either of these descriptions, Vigors & Horsfield, when they received the bird itself, described it as a new species and assigned to it a new genus, writing: "Mr. Caley has noted these two birds as sexes of the same species. He adds, that they frequented at times the neighbourhood of his house, and were found in the *green wattle trees*. The eyes he described as black. The weight of the male was $2\frac{1}{4}$ ounces."

Mr. Edwin Ashby's notes read: "This beautiful whistler is the common Thrush of South Australia, Victoria and N.S.W. It seems as much at home in the heavy timbered, wet country of the hills as the dryer back country of mallee and the oak (Tasmania). It is a fearless bird, coming in to the verandahs of the houses in search of crumbs; its fine series of whistling, echoing under the verandah roofs with a startling volume of sound, effectually awakening any late sleepers. It is deservedly one of the favourite native songsters, for its fearlessness and sociability brings it into close touch with all dwellers in the 'Bush' or to those who have gardens.

"Its nest is usually only a few feet from the ground, and a very favourite site is the stump of a felled tree, especially where the crown of the stump is well hidden by fresh shoots.

"*Colluricincla rectirostris*? The Tasmanian representative of this, the preceeding, is even a still more charming whistler, it certainly has a fuller

GREY SHRIKE-THRUSH.

repertoire and the liquid sweetness of its notes always seems to me to surpass those of the mainland form. In this island State it is deservedly a great favourite and is universally known as 'Whistling Wick.' "

Gould did not write much apparently on account of its commonness, thus: "Is an inhabitant of New South Wales and South Australia. So generally is it dispersed over the countries of which it is a native, that there are few localities in which it is not to be found; the brushes near the coast, as well as the plains of the interior, being equally frequented by it; it is a very active bird, living much among the branches, and feeding upon insects of various kinds, caterpillars and their larvæ. The term *harmonica* applied to this species is very appropriate; for although it does not give utterance to any continued song, it frequently pours forth a number of powerful swelling notes, louder but less varied than those of the Song-Thrush of Europe; and it is somewhat singular that these notes are emitted whilst in the act of feeding, and while engaged in search of its insect food."

Mr. F. E. Howe has written me: "After a gunshot this bird immediately gives vent to its call and in this respect is like the Rufous Thickhead. Most bird notes are in half tones, but in this form we have a most delightful songster that has a most wonderful range. To hear it at its best one wants to hear it on a cold and windy morning in September, when it will stay in a tree and sing for hours."

Mr. L. Chandler confirmed this note and added: "Fledglings about two days old:—Blackish-brown down on wings and back; legs and feet flesh colour; gape very pale yellow; mouth orange. The nest containing these young birds was found at Blackburn, Victoria."

Mr. T. P. Austin has written from Cobbara, New South Wales: "I cannot say the present species is common here, but pairs are met with throughout the district in all kinds of country, but are a little more numerous in the scrubs, and it is a resident species. Once they take up their quarters in any favourable locality they will remain thereabouts for years, but my experience is, that in this district they are extremely shy breeders. I have known of three pairs living for the last three or four years within a mile of my house, and although I have watched them closely I have never seen them nesting, and during the fifteen years I have been here, I have only known four pairs to breed, and, strange to relate, I found three of these nests the same day. I have found a few other nests in course of construction, but as the birds saw me near them they were all deserted. They are of a very shy disposition, always trying to keep out of sight, and are rather difficult to approach, but when disturbed seldom fly far, but continually keep moving away from an intruder. This appears very strange to me, because in all

THE BIRDS OF AUSTRALIA.

other districts where I have met with it, this Thrush is one of the tamest of birds. It has a great variety of notes, some of which are very clear and melodious. The nests are cup-shaped, roughly formed of strips of dry bark, and neatly lined with roots, usually placed on a slight hollow on top of a burnt off tree, others between a piece of leaning bark and the trunk of a tree, or even in a crevice in the bank of a creek. The clutch is usually three, but sometimes four."

Mr. Frank S. Smith wrote me from Noorat, Victoria: "This Thrush is remarkably fearless and tame and seems to prefer the society of man. There is hardly a garden—one that has a big tree or two—in the country, without its pair of Thrushes. During most of the winter they have an abrupt gobble note, not at all musical, which is uttered almost constantly, but, now and then, they break out into their own glorious song, which I have heard at all times, right through the winter."

Captain S. A. White has written me: "This is really a coastal bird and when it does penetrate any distance inland it is by means of well-timbered ranges, Moolooloo in the Flinders Ranges being the furthest north I have met with this species, and for hundreds of miles out on the plains on either side *C. rufiventris* is found. In the well-timbered country of the coast it is a common bird and one which gives much joy to those who hear its wonderful clear and ringing call. If given protection the bird, although naturally shy, becomes quite used to human beings, although at times they will resent one going near their nest, if only to look in, by pulling it to pieces and smashing the eggs. At others I have known them to build in the creepers of a verandah, on a window sill and such places where people of the house passed backwards and forwards all day long. They become very musical and call loudly in the spring and during nesting-time, and after rain in summer their beautiful notes are to be heard ringing through the timber. The nest is a good sized structure, usually made of bark or small twigs, the eggs generally being four in number. Nesting-time varies according to locality and they very often bring up a second brood. They live almost entirely upon insect life and at times they take berries and seeds. The young bird after leaving the nest makes a very monotonous call of one note, repeating it incessantly, while the parent birds are hunting for food, and this lasts for a week or so. It is very amusing to hear the parent birds giving their offspring lessons in singing, for they repeat a note time after time till the young bird masters it. *C. h. halmaturina*. This is fairly abundant on Kangaroo Island where it frequents the open timbered country along the creeks and rivers. As far as my observations take me there seems to be little or no difference in habits between this and the mainland bird. Their note seems to be quite as full

GREY SHRIKE-THRUSH.

and melodious. There seems to be no variation in the construction of the nest, or shape and coloration of the eggs. Like the mainland form they live principally upon insect life, but occasionally seeds and berries are found in the stomachs. I have found them nesting in October and November. At nesting-time the male bird is very pugnacious and he is often heard snapping the mandibles of his bill together with quite a loud sharp sound as he chases some intruder. *C. h. strigata*. I have met with this bird throughout Tasmania and also on King Island, Flinders Island and smaller islands of the Furneaux Group. Like other members of the family they obtain much of their food upon the ground and are noted for their clear and musical whistle. I found them breeding in October and November."

Mr. J. W. Mellor has written me: "This our most common 'thrush' is certainly well deserving of the specific name '*harmonica*,' as its liquid notes are most beautiful to hear, especially on a clear, sharp, frosty morning with the air light and fresh. The principal call consists of three notes, somewhat drawn out, but of the same round full tone, then comes a sharp high-pitched staccato note, and a last one on the same tone as the three previous ones and slightly drawn out, the whole call sounding like 'Bob-bob-bob-white-head'; there are other notes equally as pleasing and liquid which are undoubtedly made as love calls to their mates, as they are made more in the mating spring-time than otherwise, although it may be said to sing at all times of the year. I have observed it in so many localities that it may claim as habitat, the whole eastern portion of Australia, going as far westward as Yorke Peninsula in South Australia, but not on to Eyre Peninsula; this I am sure of, as I have made special search on this point; it is not found in Western Australia. It is found all over Victoria and New South Wales and the greater part of Queensland, especially in the southern latitudes. At the Reed beds, South Australia, they can be seen and heard at all times, as they do not migrate, and I have taken great interest in protecting them. Sometimes two broods will be reared from July to December."

Le Souëf has recorded in 1904: "Last season Mr. Andrew McGregor, of Essendon, Victoria, shot a little Chestnut-bellied Quail, which fell close by a tree not far from where he was, but before it was possible for him to secure it, a Grey Shrike-Thrush (*C. harmonica*) picked it up, and flying into a tree, commenced to make a meal off it. I knew these Shrike-Thrushes occasionally took the eggs of other birds, but did not think they would take a bird as large as a Quail."

Writing of the Birds of Kow Plains in the Victorian Mallee, Chandler observed: "*C. harmonica*. One of the first things to attract our attention was the marked difference in the notes of this bird when compared with the

THE BIRDS OF AUSTRALIA.

notes of the species around Melbourne. I felt convinced that an examination of the two types would prove the Mallee bird to be a new species. However, Mr. A. J. Campbell, to whom the skins were submitted for comparison, states that they do not differ in plumage."

In connection with his Census of the Birds of the Pilliga Scrub, New South Wales, Cleland recorded: "Sixteen birds counted, uniformly distributed throughout the journey. Estimated minimum population, 1,056."

Le Souëf and Macpherson record from Sydney, the original locality whence this species was described one hundred and thirty years ago: "The familiar Grey Shrike-Thrush is a very welcome resident, living sometimes in the larger gardens. It seems to feed a good deal on the ground, and will be seen hopping along the paths in the morning after stray worms and snails. It is quite local, and each pair seems to live in a comparatively small area."

Campbell and Barnard regarding Cardwell birds commented: "The Grey Thrushes were a trifle puzzling, although frequently in evidence. Local birds are lighter in tint, and more uniform coloured on the back than southern specimens," and then cited in connection my name given to this pallid form.

Gould wrote: "The *Colluricincla Selbii* is a native of, and a permanent resident in, Tasmania and Flinders Island, over all parts of which it is very generally, but nowhere very abundantly, distributed; it appears to give a decided preference to the thick woods, wherein its presence may always be detected by its loud, clear, liquid, and melodious whistle. It does not appear to confine itself to any particular part of the forest; for it may sometimes be observed on the low scrub near the ground, and at others on the topmost branches of the highest trees. It is distinguished from all the other members of the genus by the greater length of the bill. It feeds on caterpillars and insects of various kinds, which it often procures by tearing off the bark from the branches of the trees in the most dexterous manner with its powerful bill, and while thus employed frequently pours forth its remarkable note. In disposition it is lively and animated, confident and fearless, and might doubtless be easily tamed, when it would become a most interesting bird for the aviary."

Mr. Frank Littler has written me: "Commonly known as 'Whistling Dick' on account of its noisy and general cheerfulness. It always makes its presence known (long before it can be seen) with its loud and melodious whistling notes. The denser portions of the bush are most favoured by this bird, it is rarely seen in the open, except when passing through a cleared portion of the forest to get into the scrub on the other side. Caterpillars

GREY SHRIKE-THRUSH.

and insects of various kinds, especially those to be found under the barks of trees, constitute the principal food. On account of its powerful bill it is enabled, with ease, to strip the loose bark from the limbs and search out its prey. It has come to bush homesteads and hunted insects and picked up crumbs and would sit on the fence and pour forth its melodious notes."

Mr. Edwin Ashby writes: "I have seen this bird in Tasmania wherever I have been, and it has several notes quite distinct from those of the mainland, otherwise there appears to be little difference in habits, etc."

Although figured and described in 1790 in White's Journal, as above related, this species was not scientifically named until Latham published his Supplement to his Index Ornith. in 1801, when he gave the name of *Turdus badius* to it. Higher on the same page he had described *Turdus harmonicus* which he thought might be a different species, and that name has been used for the last eighty years. Before it was recognised Vigors and Horsfield had received a specimen and, recognising its peculiar features, made a new genus for it which is the one we now use.

When the Tasmanian form was received in England it was at once described as a new species by two different workers and the earliest name, though accompanied by a good description, was ignored until I revived it. It is noteworthy that Gould used a name for the form as one given by Jardine. Sharpe in the *Catalogue of Birds in the British Museum* rejected Gould's name in favour of Jardine and Selby's, though of course Swainson's should have been preferred, and Sharpe's usage, being in an authoritative work, was followed by most workers. The Tasmanian form is superficially a very distinct form, the streaking of the breast (whence the name *strigata*) and the long straight bill (whence the name *rectirostris*) being very characteristic. However, intermediate forms like to the mainland occur so that I now regard it as subspecific only, but it is on the border line between a species and subspecies, and is an excellent instance of the development of the Tasmanian species.

No other forms were recognised or named until Masters described from Cape Grenville, North Queensland, a new species under the name *Colluricincla superciliosa*. Of this Macgillivray has recently written: "The White-browed Shrike-Thrush was fairly common in the open forest. The type of *C. superciliosa* was obtained at Cape Grenville, half-way between Cape York and the Claudie River, and is so far the only specimen obtained that has a broad white eyebrow. All specimens, however, obtained from different parts of the Cape York Peninsula are alike, and Mr. Mathews

THE BIRDS OF AUSTRALIA.

groups them all under this subspecific title. Scattered parties of from two to five birds were common in the forest country about the Archer in June."

The next items of importance technically appeared when A. G. Campbell recorded the differences between Victorian and Tasmanian birds, when he observed: "The King Island bird is smaller in the wing and with more slender tarsus than the Tasmanian. The young and the female birds of this species (*rectirostris*) are easily distinguished from those of the mainland form by having a boldly striped breast and a distinct reddish-brown eyebrow," and gave measurements:

Vic.	Total length 9.0 inches,	culmen .77,	wing 5.0,	tail 4.3,	tarsus .7
Tas.	9.6	1.1	5.0	4.2	1.3
King I.	9.75	1.1	4.75	4.1	1.3

Then dealing with the birds of Kangaroo Island he wrote: "One specimen obtained proves to have a much darker under-surface than the mainland specimens, and no light throat or eyebrows. The light colour is confined to a loreal spot only."

He had previously noted: "should subsequent research warrant it, the name (*halmaturina*) be subspecifically applied to *C. harmonica*."

Upon examination of a fairly good series from most parts of Eastern Australia I arranged the species in my "Reference List," 1912, thus:

Colluricincla harmonica harmonica (Latham).

New South Wales.

Of this form *Turdus badius* Latham, *Colluricincla cinerea* Vigors and Horsfield, *Turdus pallidus* Peale and *Lanius saturninus* Nordmann, are absolute synonyms.

Colluricincla harmonica victoriae Mathews.

"Differs from *C. l. harmonica* in its darker coloration above. Victoria."

Victoria, South Australia.

Colluricincla harmonica oblita Mathews.

"Differs from *C. l. harmonica* in its pale coloration, both above and below. Inkerman, Queensland."

South Queensland.

Colluricincla harmonica strigata Swainson.

Tasmania.

Of this form *Colluricincla rectirostris* Jardine and Selby and *C. selbii* Gould are synonyms.

Colluricincla harmonica pallescens Mathews.

"Differs from *C. l. harmonica* in its much paler coloration, both above and below, the back coloration so pale as to almost blend into the grey of

GREY SHRIKE-THRUSH.

the head and rump, while the abdomen is almost pure white." Cairns, Queensland.

North Queensland.

Colluricincla harmonica superciliosa Masters.

North Queensland.

I retained these unchanged in my 1913 "List" with the addition of

Colluricincla harmonica halmaturina A. G. Campbell.

Kangaroo Island.

As a synonym I added *C. h. zamba* Mathews, a name I gave to the Kangaroo Island bird through overlooking the tentative and buried name proposed by A. G. Campbell.

My description read: "Differs from *C. h. victoriae* in having a darker rump and head, and it is also dark below," thus confirming Campbell's differences.

I now add *Colluricincla harmonica kingi* subsp. nov., which differs from *C. h. strigata* Swainson in having a shorter wing. Type, King Island.

Gould cited *Colluricincla selbii* as being published by Jardine and Selby in their *Illustr. Ornith.*, Vol. II., note to text of pl. 71. In all the copies of this work yet examined the name does not occur, but it may be that the name was printed and then the page cancelled, a not uncommon practice in those days, but of this there is no evidence.

The first published acceptance of the name must now be Ewing, *Tasmanian Journal Nat. Sci.*, Vol. I., p. 53, 1841; substitute name for *C. strigata* Swainson, Tasmania.

COLLURICINCLA BRUNNEA.

BROWN SHRIKE-THRUSH.

(PLATE 479.)

COLLURICINCLA BRUNNEA Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, July, 1841 :
N.W. Coast Australia=Port Essington, Northern Territory.

Spelt *Colluriocincla*, *Collyriocichla*, etc.

Colluricincla brunnea Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, 1841; *id.*, Birds Austr., pt. 31 (Vol. II., pl. 76), June 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 223, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 291, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878; *id.*, Tab. List Austr. Birds, p. 5, 1888; Hall, Key Birds Austr., p. 11, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 91, 1901; Hall, Emu, Vol. I., p. 107, 1902 (N.W.A.); Le Souëf, *ib.*, Vol. II., p. 88, 1902 (N.T.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 95, 1903; Berney, Emu, Vol. VI., p. 158; Vol. VII., p. 81, 1907 (Food); Mathews, Handl. Birds Austral., p. 82, 1908; Whitlock, Emu, Vol. VIII., p. 179, 1909 (W.A.); Jackson, *ib.*, p. 247 (N.Q.); Hill, *ib.*, Vol. X., p. 280, 1911 (N.W.A.); Shufeldt, *ib.*, Vol. XI., pl. XIX., XX., 1912 (Egg); Mathews, Nov. Zool., Vol. XVIII., p. 370, 1912; Macgillivray, Emu, Vol. XIII., p. 173, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 47 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 225 (N.T.); Campbell, *ib.*, Vol. XVIII., p. 184, 1919 (N.T.).

Collyriocincla pallidirostris Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 293, June, 1877 :
Port Essington, Northern Territory; Ramsay, Tab. List Austr. Birds, p. 5-25, 1888; Hall, Key Birds Austr., p. 11, 1899; *id.*, Emu, Vol. I., pp. 88-106, 1902 (N.W.A.).

Colluricincla brunnea parryi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 46, April 2nd, 1912 : Parry's Creek, North-west Australia; *id.*, List Birds Austr., p. 238, 1913.

Colluricincla brunnea roebucki Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 94, Sept. 18th, 1912 : Roebuck Bay, North-west Australia; *id.*, List Birds Austr., p. 238, 1913.

Colluricincla brunnea caloola Mathews, Austral Av. Rec., Vol. II., pt. I., p. 10, Aug. 2nd, 1913 : Caloola, Leichhardt River, Gulf of Carpentaria, Queensland; *id.*, List Birds Austr., p. 238, 1913.

Colluricincla brunnea melvillensis Zeitz, South Austr. Ornith., Vol. I., pt. I., p. 16, Jan. 1st, 1914 : Melville Island, Northern Territory.



H. Grönvold. del

Witherby & Co

COLLURICINCLA RUFIVENTRIS.
(BUFF-BELLIED SHRIKE-THRUSH).

COLLURICINCLA BRUNNEA.
(BROWN SHRIKE-THRUSH).

BROWN SHRIKE-THRUSH.

DISTRIBUTION. North-west Australia from Roebuck Bay through Northern Territory to the Leichhardt River in Western Queensland.

Adult male. Crown of head, nape, and sides of face ash-grey with a trace of dark shaft-lines to the feathers on the crown; entire back, wings, and tail drab-grey; inner webs of flight-quills darker than the back and margined with white, or buffy-white on the basal portion; tail also somewhat darker than the back; lores and base of forehead whitish, many of the feathers bristly in texture with black tips; rectal-bristles black with white bases; chin and throat grey streaked with whitish; breast, abdomen, sides of body and thighs pale grey, more or less tinged with fawn-colour like the axillaries, under wing-coverts and inner margins of quills below; remainder of quill-lining hair-brown; lower aspect of tail pale brown with glossy reflections. Eyes reddish-brown; feet and legs brown, bill dark brown. Total length 270 mm.; culmen 22, wing 128, tail 108, tarsus 38. Figured. Collected on Parry's Creek, North-west Australia, on the 29th of August, 1908, and is the type of *C. b. parryi*.

Adult female. General colour of the upper-surface pale drab-grey, including the top of the head, sides of neck, hind-neck, back, wings, and tail; there are slight traces of dark shafts to the feathers on the head; outer edge of wing and outer margins of greater upper wing-coverts and flight-quills pale fawn-colour, inner margins of the last buffy-white, the remaining portion of the inner webs are rather darker than the back; tail also darker than the back with pale buff tips to the feathers; a supraloral line which extends over the eye on to the sides of the crown and eyelids fawn-colour; sides of face similar; rectal-bristles black; some of the feathers in front of the eye and on the chin and throat have black hair-like tips; chin and throat buffy-white with grey shaft-streaks to the feathers; breast and sides of body pale fawn-colour, with the grey shaft-streaks almost obsolete; thighs and under tail-coverts uniform pale fawn-colour; axillaries, under wing-coverts, and inner edges of flight-quills below deep fawn-colour, remainder of quill-lining glossy hair-brown; lower aspect of tail similar with white shafts to the feathers. Eyes reddish-brown, feet and legs leaden-blue, bill pale grey; culmen, tip pale brown. Total length 255 mm.; culmen 20, wing 117, tail 105, tarsus 31. Figured. Collected on Parry's Creek, North-west Australia, on the 13th of August, 1908.

Immature. "Young birds have the sides of the head and all the under-surface deeply tinged with fawn-colour; the primaries, secondaries and upper wing-coverts externally edged with rufous; the under wing-coverts a deep orange-buff; and the breast more broadly streaked with dark brown than in the adult female." (North.)

Eggs. Usually from three to four for a setting, and vary considerably in size and shape. Some are short and very rounded ovals, others are swollen, pointed, and elongate ovals. A typical clutch of three is swollen oval in shape, ground-colour white, spotted and blotched with light to very dark olive-brown, and pale to dark slate markings; becoming confluent at the larger end. Surface of shell rather fine, smooth and glossy. Another clutch containing four eggs and of quite a different type are rather elongate ovals in shape, and much more numerous spotted all over. Ground-colour white, speckled and spotted all over, but more so at the larger end, with light to dark olive-brown and pale slate. The four eggs are very uniformly marked. Surface of shell rather fine, smooth and glossy. They measure 30 mm. by 21.

Nest. An open cup-shaped structure, composed of strips of bark and leaves, and lined with leaves, and placed in the top of an old dead stump, or in a cleft in a wall of sandstone. Nest measures 6 to 8 inches across over all, by 4 to 5 inches in depth; egg cavity $3\frac{1}{2}$ inches across by $2\frac{1}{2}$ inches deep.

Breeding season. September to November or December.

THE BIRDS OF AUSTRALIA.

THE confusion of subspecies with species is responsible for the following account by Gould under the heading of *C. brunnea*: "This bird is abundantly dispersed over the Cobourg Peninsula, and is to be met with in all the forests in the immediate neighbourhood of Port Essington and the north coast generally, in which distant localities it represents the *Colluricincla harmonica* of New South Wales, the *C. Selbii* of Tasmania, and the *C. rufiventris* of Western Australia. As might be expected, its habits, manners, and general economy are very similar to those of the other species of the genus; consequently the description of those of *C. harmonica* is equally descriptive of those of *C. brunnea*."

Very little has been recorded of the habits of this species.

Mr. J. P. Rogers wrote me from Melville Island: "Cooper's Camp, Nov. 20, 1911. This species is numerous in the forest country here. Usually they feed on the ground but are only found in the forest. Dec. 16, 1911. Are still numerous in the forest country. Jan. 14, 1912. 10 miles S.E. of Snake Bay. This species is not so numerous here as at Cooper's Camp. Feb. 5, 1912. Cooper's Camp again. Still very numerous here."

Whitlock has recorded from the Pilbarra Goldfields: "Rare and extremely local. I only met with three pairs—two of them in the same creek and near the old nests of *Uroaetus audax*; the others in a creek some miles away. I found one nest; the eggs, however, were unfortunately damaged through a twig falling into the nest. It was blowing a gale at the time. I shot a pair, as I thought I could detect differences in the song and that the general appearance of the birds was less robust than that of south-western birds." (Are these *C. rufiventris murchisoni*?)

As this species does not occur in the south-west there is probably some confusion here, as in the next case I quote. Berney has written: "Among the gidea scrubs on the basalt ranges on Spring Valley I often saw this species . . . Although it possesses a variety of notes, many of them very liquid and sweet, it cannot, as far as my experience goes, be credited with having a song."

Then G. F. Hill recorded from the Kimberley District, North-west Australia: "A common species in most localities. Lizards were found in many of the birds dissected."

Macgillivray has written: "Brown Shrike-Thrush (*C. brunnea*). Mr. McLennan collected two specimens in the Gulf country, both of which Mr. Mathews refers to this species. They differ very considerably from one another, and until a large series of skins is examined and more observations made in a state of nature I would not consider the matter settled. Mr. North also refers both these to *C. brunnea*. They are fairly common in the Gulf

BROWN SHRIKE-THRUSH.

country, where conditions favour their habits. At Cape York there is one large *Colluricincla* and one small. The latter is easily placed as *C. rufigaster*. The former is in dispute. Mr. North refers it also to *C. brunnea*, and states that it does not agree with the type of *C. superciliosa* Masters, the latter bird having a broad white eyebrow, and being very distinct from my specimens. Mr. Mathews refers my Cape York specimens to *C. superciliosa*. If that be correct, then the type skin must be abnormal, as my skins do not show any white eyebrow, or, at any rate, no very distinct one; and, again, the female of *C. brunnea* is supposed to have a white eyebrow. Mr. McLennan met with only the one species at Cape York in the course of two years, and it is not likely that he could overlook as conspicuous a bird if any other such existed there. Skins were obtained at Paira, Peak Point, and on the Jardine River, all of the same species, and several nests were found containing either young birds or eggs."

Barnard wrote from the McArthur River, Northern Territory: "*C. brunnea*. Found mostly on the flat country, and occasionally on low sandstone hills."

McLennan from the King River wrote: "Fairly plentiful in forest country. Stomach: small remains of insects and seeds, beetles, grasshoppers, and lizard bones. Small worms in eye membrane, and larger ones in liver."

The technical history is almost as brief as its economic. Gould described the species from the N.W. Coast of Australia, which to the present day, as at that time, includes Port Essington. Because the latter is now included in the political division of Northern Territory it does not alter its geographical position.

A confusion arose through Sharpe's action in describing as a new species a bird from Port Essington with a pale bill as *C. pallidirostris*.

Ramsay suggested: "*C. superciliosa* Masters, may be a very old bird of *C. brunnea* Gould, and probably the same as Sharpe's *C. pallidirostris*. It (*C. superciliosa*) has a distinct, broad white stripe over the eye and extending beyond it, and is a fully adult bird; the young of *C. brunnea* have a buff line over the eye."

It is now generally conceded that *C. pallidirostris* Sharpe was based on the female of *C. brunnea* from the typical locality.

Since I drew up my "Reference List" in 1912 many specimens have come to hand, and I have named

Colluricincla brunnea parryi.

"Differs from *C. b. brunnea* in its very much paler general coloration. Parry's Creek, North-west Australia."

THE BIRDS OF AUSTRALIA.

Colluricincla brunnea roebucki.

“Differs from *C. b. parryi* in its general earth-brown coloration and smaller size (wing 118 mm.). Roebuck Bay, North-west Australia”
and

Colluricincla brunnea caloola.

“Differs from *C. b. brunnea* in being much paler above; paler than *C. b. parryi*. Wing 129 mm. Coloola, Leichhardt River.”

Gulf of Carpentaria, Queensland.

These I admitted in my “List” in 1913, and then Zietz added

Colluricincla brunnea melvillensis.

“Upper and lower surface darker and bill thinner than in specimens from N.W. Australia. Wing 125 mm. Melville Island.”

Recently writing upon birds from the King River, Northern Territory, Campbell has recorded: “*Colluricincla brunnea*. Two ♀ ♀, 1 ♂, showing reddish-brown colour, a tone of wood-brown or drab above. North-western birds (*parryi* Mathews) which are like those from the Macarthur River (Gulf country), are paler and are not so dark about the throat and chest, but have the same wing (130 mm.).”

Order PASSERIFORMES.

Family PRIONOPIDÆ.

No. 586.

COLLURICINCLA RUFIVENTRIS.

BUFF-BELLIED SHRIKE-THRUSH.

(PLATE 479.)

COLLURICINCLA RUFIVENTRIS Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, July, 1841 :
Swan River, West Australia.

Also spelt—

Colluriocincla, *Collyriocichla*, etc.

Colluricincla rufiventris Gould, Proc. Zool. Soc. (Lond.), 1840, p. 164, 1841; *id.*, Birds Austr., pt. 32 (Vol. II., pl. 75), Sept. 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 222, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 292, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878; *id.*, Tab. List Austr. Birds, p. 5, 1888; Hall, Key Birds Austr., p. 11, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 91, 1901; Milligan, Emu, Vol. II., p. 71, 1902 (W.A.); *id.*, *ib.*, Vol. III., p. 16, 1903 (W.A.); North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 98, 1903; Carter, Emu, Vol. III., p. 35, 1903 (W.A.); H. E. Hill, *ib.*, p. 105 (W.A.); Lawson, *ib.*, Vol. IV., p. 134, 1905 (W.A.); Mathews, Handl. Birds Austral., p. 82, 1908; Gibson, Emu, Vol. IX., p. 73, 1909 (W.A.); Crossmann, *ib.*, p. 89 (W.A.); Hall, *ib.*, p. 127, 1910 (S.A.); Whitlock, *ib.*, p. 207 (W.A.); Carter, *ib.*, Vol. X., p. 298, 1911 (W.A.); S. A. White, *ib.*, Vol. XII., pp. 3, 5, 7, 1912 (S.A.); *id.*, *ib.*, Vol. XIII., p. 29, 1913 (S.A.); *id.*, *ib.*, Vol. XVIII., p. 197, 1919 (W.A.); *id.*, *ib.*, Vol. XX., p. 128, 1921 (W.A.); Ashby, *ib.*, p. 135, 1921 (W.A.); Le Souëf, *ib.*, p. 144 (W.A.); Alexander, *ib.*, p. 166 (W.A.).

Turdus subcinereus Sclater, Proc. Zool. Soc. (Lond.), 1866, p. 320, Oct. 1st: "Rep. Chiliana" error=Swan River, South-west Australia.

Colluricincla rufiventris rufiventris Mathews, Nov. Zool., Vol. XVIII., p. 370, 1912; *id.*, List Birds Austr., p. 238, 1913; Carter, Ibis, 1921, p. 64.

Colluricincla rufiventris whitei Mathews, Nov. Zool., Vol. XVIII., p. 370, Jan. 31st, 1912: Eyre's Peninsula, South Australia; *id.*, List Birds Austr., p. 238, 1913.

Colluricincla rufiventris murchisoni Mathews, Austral. Av. Rec., Vol. I., pt. 4, p. 94, Sept. 18th, 1912: East Murchison, Mid-west Australia; *id.*, List Birds Austr., p. 238, 1913.

Colluricincla rufiventris carteri Mathews, Austral. Av. Rec., Vol. V., pts. 2-3, p. 35, Feb. 21st, 1923: Albany, South-west Australia.

DISTRIBUTION. Western and South Australia, from North-west Cape round to Eyre's Peninsula.

THE BIRDS OF AUSTRALIA.

Adult female. General colour of the upper-surface slate-grey, including the top of the head, sides of face, sides of neck, hind-neck, back, outer aspect of wings and tail; inner webs of the upper wing-coverts and flight-quills dark brown with buffy-white margins to the latter; lower back, rump, and upper tail-coverts rather paler than the upper-back; tail also slightly paler than the back and inclining to brown with obsolete cross-bars; lores whitish with black hair-like tips to the feathers; rictal-bristles black; fore-part of cheeks speckled with slate-grey and white; chin and throat greyish-white with dark shafts to the feathers, which terminate in black hair-like tips; breast pale slate-grey with slightly darker shaft-streaks; abdomen and sides of body buff with grey shaft-lines; vent white; thighs grey; under tail-coverts fawn-colour; axillaries and lesser under wing-coverts ash-grey, the greater series and inner margins of quills below buff, remainder of quill-lining greyish-brown; lower aspect of tail also greyish-brown with white shafts to the feathers. Eyes red-brown, feet lead-grey, bill pale horn with culmen darker. Total length 223 mm.; culmen 20, wing 119, tail 98, tarsus 31. Figured. Collected at Wilson's Inlet, South-west Australia, on the 2nd of May, 1910. (*C. r. carteri*.)

Adult female. General colour of the upper-surface drab-grey, including the crown of the head, sides of face, sides of neck, hind-neck, back, and scapulars; upper tail-coverts slate-grey; outer aspect of wings olive-brown, the central portion of the coverts and inner-webs of flight-quills dark brown with buffy-white margins to the latter; tail hair-brown, some of the feathers slightly fringed with slate-grey and show traces of obsolete cross-bars; rictal-bristles black; lores whitish with black hair-like tips to the feathers; chin and throat greyish-white, with grey shaft-lines to the feathers, many of the feathers on the chin have black hair-like tips; breast, sides of body, and thighs slate-grey more or less tinged with buff; abdomen and flanks pale buff; under tail-coverts fawn-colour; axillaries and under wing-coverts similar but somewhat paler; inner edges of quills below buff, remainder of quill-lining hair-brown; lower aspect of tail greyish-brown with white shaft-lines. Eyes brown, feet slatey; bill, upper mandible black, lower grey. Total length 250 mm.; culmen 22, wing 120, tail 100, tarsus 32. Figured. Collected on Mt. Ille Bille, South Australia, on the 3rd of August, 1914, and is *C. r. whitei*.

The sexes are very similar.

Immature. "Young birds have a distinct rufous eyebrow; sides of the head, neck and all the under-surface fawn-colour; the feathers on the throat and fore-neck broadly streaked with blackish-grey; the primaries and their coverts, secondaries and greater wing-coverts brown, washed with rufous." (North.)

Eggs. Vary from two to three for a setting, but three usually. They very closely resemble those of *Collyriocichla harmonica*. A clutch of three is oval in shape, ground-colour white, spotted and blotched, more especially at the larger end, with light to dark olive-brown, pale slate, and purplish-grey markings. Surface of shell rather fine, smooth and glossy. They measure 30 mm. by 20.

Nest. The usual open cup-shaped structure, chiefly composed of strips of bark, and generally placed in the dead stump of a forest tree.

Breeding season. September to November; March, April.

ALTHOUGH Gould separated these Shrike-Thrushes as distinct species he nevertheless recognised their representation and might have agreed to their degradation to what we now call subspecies. Thus of this species he wrote: "Is about the size of the *Colluricincla harmonica*, from which

BUFF-BELLIED SHRIKE-THRUSH.

at a first glance it might be mistaken, but from which on comparison it will be found to differ in the following particulars:—the whole of the upper surface is pure grey instead of brown; the abdomen and under tail-coverts are deep buff instead of greyish-white; and the lores are much more distinctly marked with white. It is a native of Western Australia, where it is to be found in all thickly wooded places, feeding as much on the ground as upon the trees and scrubs. . . . The stomach is muscular, and the food consists of insects, principally of the coleopterous order, and seeds.”

Milligan reported from the Margaret River district, south-west of South-west Australia: “*C. rufiventris* was fairly abundant on each visit,” and from the Stirling Ranges, south-east of South-west Australia: “Numerous on good soils,” while H. E. Hill wrote from Brookton, 100 miles S.E. of Perth: “Very abundant everywhere. Some individuals were very shy and difficult to approach, while others were the reverse. Have several distinct songs, one of which is loud and musical but hardly so melodious as that of *C. harmonica* of eastern fame.”

Whitlock wrote from the East Murchison: “This Shrike-Thrush was generally distributed throughout the district, but was comparatively rare around the margins of Lake Violet. I did not have much luck with its nest and eggs, finding but three in all, two of which contained newly-hatched young. It was not till 1st November that I obtained a pair of eggs. I took these from the fork of a casuarina when hunting for a Bower-Bird’s nest some seven miles from my camp. The nest was remarkably deep, being built on a foundation of needles from the tree. The walls of the nest were constructed exclusively of strips of soft bark.”

Mr. Tom Carter’s observations read: “The Buff-bellied Shrike-Thrush was common in all the gullies of the North-west Cape region, but did not seem to occur away from that vicinity, nor in the scrub of the inland flat country. The birds have a loud cheerful song, constantly uttered, throughout the year. One day I watched a male bird at the distance of a few feet, as it hopped about in the branches of a stunted tree. It was singing loudly, and at the same time was holding a lizard in its beak. Rather curiously, I never found their nests or eggs and often thought that they must build in crevices of the rocky gorges and cliffs, because there was no timber of any size, and had the birds built in the bushes (which were not numerous) either natives or myself ought to have found some nests but we never did, neither did I notice any *old* nests. Recently fledged young were observed on July 27.”

“Another subspecies is common throughout the south-west, down to the coast. They occur close to Albany town. About Broome Hill they

THE BIRDS OF AUSTRALIA.

are very numerous in the open light-timbered country there. The breeding season is October-November-December. As these birds have the habit of re-lining old nest of Babblers (*Pomatostomus superciliosus*) and laying their eggs in them, the eggs are not so often found as would be imagined from the number of Thrushes about. And as old nests of Babblers are to be seen in hundreds and are often built in the small upper branches of Jam trees, etc., one would soon be tired of examining them on the odd chance of finding any Thrushes' eggs inside. I think that where Babblers abound, the Thrushes utilize their old nest more often than they build nests for themselves. Oct. 21, 1907. Found nest, containing two fresh eggs, on which the male bird was sitting. It was rather an untidy nest of twigs, lined with grass, built in the fork of a Jam tree (*Acacia acuminata*) about ten feet from the ground. Nov. 23, 1906. Nest with three fresh eggs, inside old nest of Babbler. Nov. 2, 1907. Two fresh eggs in nest. Oct. 21, 1910. While my man and self were felling a live Jam tree we noticed a pair of these Thrushes making a great fuss in the top of it, and looking up I saw the bulky nest of a Babbler in the upper twigs, about 25 feet from the ground. After the tree was down I examined this nest, and found inside it three fresh eggs of the Thrushes, but all broken by the fall. June 25, 1911. Found a nest fresh lined with grass inside, an old nest of Babbler, ten feet from the ground in a Stinkwood tree. The nest was found by watching the Thrushes carry material to it. They forsook it, however, on account of my examining it. Recently fledged young noted Oct. 28, 1905; Nov. 2, 1912; Dec. 2, 1906. On Dec. 22, 1907, and Dec. 15, 1910, saw fledged young out of nest, being fed by parents."

Later Carter recorded in the *Ibis*: "Buff-bellied Shrike-Thrushes were common about Broome Hill and south-west localities. In the Gascoyne and Point Cloates districts these birds are mostly found in stony ranges, and are common in all the gorges of the North-west Cape ranges, where their song is quite different from that of the southern bird. On 7th August, 1916, I found a nest four feet from the ground, in the fork of a small white gum tree, in a gorge near the North-west Cape; it contained two young birds about half grown, and the male bird was sitting on them."

Crossman recorded from Cumminin Station, about 200 miles due east of Perth: "This bird is decidedly common, more especially in the forest country, where its fine ringing notes may continually be heard in the winter and spring."

Gibson, writing about birds, observed Kalgoorlie and Eucla, W.A.: "Fairly common in the mulga country, a few here and there in the giant mallee and semi-open country, common near the coast."

BUFF-BELLIED SHRIKE-THRUSH.

Captain White recorded: "This bird was met with in the timbered country (Cape Naturaliste district, W.A.), but was not plentiful anywhere. The habits of this form seem identical with those of the South Australian bird."

Ashby observed: "Common at Geraldton and Dongara, but we did not secure any specimens there; I am sorry for this, as the skins I procured at Ellensbrook differs considerably from a specimen I took in 1901 at Callion, on the goldfields."

Captain S. A. White states: "Although the habits of *C. r. whitei* are much like those of *C. harmonica* its voice is not nearly so good. Possibly this is owing to the dry country which it inhabits. I have met with this bird all through the north and north-west country of South Australia. Out in the Great Mulga scrubs which cover much of our vast interior this bird is to be met with, where it takes much of its food on or near the ground."

Mr. J. W. Mellor has written me: "I am well acquainted with this bird in the more western portions of South Australia, where I have taken particular notice of the distribution while on Eyre's Peninsula on the several occasions that I have been studying bird life in the bush on that large tract of land. I find that it comes east right up to the western shores of Spencer's Gulf, but no further, and does not occur on Yorke Peninsula; the waters seem to form the barrier for its extension eastwards, but it goes right over to the western boundary of West Australia and then on into that vast trackless waste which extends for hundreds of miles in that State, wherever mallee, broom-bush and yacca are found in abundance."

Captain S. A. White writing about the birds of Eyre's Peninsula observed: "These birds were fairly plentiful along the creek. Habits seemed identical with those *C. harmonica*. We do not think they have so liquid and pleasing a note as the eastern birds. Returning to Arno Bay, for the last few miles, close to the sand-dunes we saw a very dark-coloured Thrush in the mangrooves, which were very thick along a salt creek. After a great deal of trouble we secured a specimen, which we believe to be *C. rufiventris*. It resembles that bird, excepting that its entire plumage is very dark, due, no doubt, to its living among the mangroves." Then, recording the results of a trip to the Gawler Ranges, Captain White wrote: "Wherever there was sufficient scrub for shelter we met with this fine bird. Observations proved that they procure much of their food on the ground, over which they hop in an exceedingly sprightly manner."

Mr. Edwin Ashby writes: "My knowledge of this bird in the State of South Australia is limited to the district west of Port Augusta in the neighbourhood of Lake Gillies. It extends from there westward into Western

THE BIRDS OF AUSTRALIA.

Australia. I found it common in the neighbourhood of the goldfields and on Nov., 1920, saw it in the timbered water courses near Dongara and Geraldton.

"I also collected it in the wet large-timber country at Ellensbrook. The specimen I collected there is distinctly paler than are those I took in the goldfields. It seems probable that a pale race inhabits the S.W. corner of W.A.

"While the song or whistle of this species is very similar to *C. harmonica*, it is decidedly less strong, the eastern species having the greater volume of sound."

As regards the scientific history of this species there is little to be written, as its range was supposed to be Western Australia alone. It was, however, found to be common in Eyre's Peninsula, and in my "Reference List" in 1912 I admitted:

Colluricincla rufiventris rufiventris Gould.

West Australia, Swan River District.

Colluricincla rufiventris whitei Mathews.

"Differs from *C. r. rufiventris* in its brown coloration above and below. Eyre's Peninsula, S.A."

South Australia.

I later added:

Colluricincla rufiventris murchisoni Mathews.

"Differs from *C. r. rufiventris* in having a brown back, not slate-blue; the throat is brown, and the belly has no white. East Murchison, Westralia."

Mid-west Australia.

These three were included in my 1913 "List," and I have since added

Colluricincla rufiventris carteri, from Albany, S.W. of West Australia.

"Differs from *C. r. rufiventris* Gould in being a darker shade above and the vent much more pronounced in colour. It is also smaller.

GENUS—ALPHACINCLA.

ALPHACINCLA Mathews, Austral Av. Rec.,

Vol. II., pt. 5, p. 110, Sept. 24th,

1914. Type (by original designation) *Colluricincla woodwardi* Hartert.

I HAVE diagnosed this genus: "Differs from *Colluricincla* Vigors and Horsfield in having a flat head and a long thin bill equal to the length of the head; lower bill with wide interramal space; nostrils in a groove with no feathers."

ALPHACINCLA WOODWARDI.

RED-BELLIED SHRIKE-THRUSH.

(PLATE 480.)

COLLURICINCLA WOODWARDI Hartert, Nov. Zool., Vol. XII., p. 228, Feb. 11th, 1905 :
South Alligator River, Northern Territory.

Colluricincla woodwardi Hartert, Nov. Zool., Vol. XII., p. 228, 1905 ; *id.*, *ib.*, Vol. XIII.,
p. 755, pl. 1 f. 2., 1906 ; Mathews, Handl. Birds Austral., p. 82, 1908 ; Le Souëf,
Emu, Vol. VIII., p. 61, 1908 ; Hill, *ib.*, Vol. X., p. 280, 1911 (N.W.A.) ; Mathews,
Nov. Zool., Vol. XVIII., p. 370, 1912 ; *id.*, List Birds Austr., p. 238, 1913 ; Barnard,
Emu, Vol. XIII., p. 188, 1914 (N.T.) ; *id.*, *ib.*, p. 210 (N.T.) ; *id.*, *ib.*, Vol. XIV.,
p. 47 (N.T.) ; H. L. White, *ib.*, p. 57 (Eggs) ; *id.*, *ib.*, Vol. XVI., p. 225, 1917 (N.T.).

Colluricincla woodwardi assimilis Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 100, Sept.
24th, 1914 : Napier Broome Bay, North-west Australia.

Alphacincla woodwardi woodwardi Mathews, *ib.*, p. 110.

Alphacincla woodwardi assimilis Mathews, *ib.*

Alphacincla woodwardi didimus Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 83,
May 25th, 1916 : McArthur River, Northern Territory.

DISTRIBUTION. North-west Australia and Northern Territory.

Adult male. General colour of the upper-surface sepia-brown, including the back, wings,
upper tail-coverts, and tail ; inner-webs of bastard-wing, primary-coverts, and
flight-quills dark hair-brown with buff margins to the last ; crown of head, hind-
neck, sides of face, and sides of neck similar but tinged with grey ; lores, feathers
in front of the eye, cheeks, chin, and throat buffy-white with black hair-like tips
to the feathers ; lower throat and fore-neck fawn-colour tinged with grey ; remainder
of the under-surface dark fawn-colour, including the breast, abdomen, sides of
body, thighs, under tail-coverts, axillaries, and under wing-coverts ; under-surface
of flight-quills dark brown margined with dull cinnamon ; lower aspect of tail
similar to its upper-surface, but paler. Eyes reddish-brown ; feet dark brown ;
bill dark horn. Total length 255 mm. ; culmen 23, wing 114, tail 111, tarsus 28.
Figured. Collected on the McArthur River, Gulf of Carpentaria, Northern Territory,
on the 5th of September, 1913, and is the type of *Alphacincla woodwardi didimus*.

Adult female similar to the adult male.

Eggs. Two to three for a sitting and they show great variation in their size, shape, ground-
colour and general markings. In some the ground-colour is quite a pearly-white,
while in others it is a distinct creamy-white. A clutch of three, of the usual Shrike-
Thrush shape : texture of shell smooth and glossy ; ground-colour pure pearly-
white ; the markings of brownish-black, brown and slate-grey, are mostly large
and sparingly distributed, principally about the larger end. The clutch measures
30 mm. by 20-21.



H. Grönvold. del

Witherby & Co

CONIGRAVEA PARVULA.
LITTLE SHRIKE-THRUSH.
ALPHACINCLA WOODWARDI.
(RED-BELLIED SHRIKE-THRUSH.)

RED-BELLIED SHRIKE-THRUSH.

Nest. "A cup-shaped structure, composed entirely of the reddish-brown roots of *Spinifex* (*Triodia*), and usually placed in cracks or holes in sandstone cliffs, with rocks overhanging. Measurements: outside diameter, 6 inches; inside diameter, 3 inches; outside depth, $2\frac{1}{2}$ inches; inside depth, $1\frac{1}{2}$ inches."

Breeding-season. December.

WHEN Hartert described this beautiful species he recorded no field notes. A little later Le Souëf described the eggs from Port Darwin, but recently H. L. White has stated that these must have been the eggs of *C. brunnea*.

Then G. F. Hill recorded: "These rare birds inhabit the broken sandstone plateau east of Napier Broome Bay, where they take the place of *C. brunnea* in the open forest country. They are extremely shy, and difficult to approach in this rugged country, as they fly and hop from rock to rock, exposing themselves only for an instant before concealing themselves in crevices or under overhanging ledges. The notes are very strong and clear, and when uttered amidst such surroundings the two quickly repeated whistles are multiplied by many echoes, producing an effect that is not equalled by any bird in the north-west. I feel sure that this species is a resident one, although I saw it very occasionally, and never twice in the same locality."

Then Barnard found them on the McArthur River and gave a good account of his search for the eggs, and recorded: "These birds were first noticed in high sandstone country at the junction of the McArthur and Clyde Rivers, in September, but they were not breeding. Later we found them in the same belt of country, west of Borroloola. Three weeks after taking the first nest (as recorded previously) I again visited the same locality, and was successful in taking several sets, each containing three eggs. The nests were all placed in holes or on the ledges of the large overhanging sandstone rocks. All were composed of the fine reddish roots of the spinifex. The country inhabited by these birds has to be seen before an idea of its roughness can be formed."

These eggs were described by H. L. White, who pointed out that Le Souëf's record was probably wrong.

Then H. L. White recorded McLennan's notes that at the King River it was "Numerous in the sandstone ranges. Stomach: remains of insects, grasshoppers and spiders. Worms under skin."

I separated as

Colluricincla woodwardi assimilis.

"Differs from *C. w. woodwardi* in being much paler on the under-surface. Iris brown; bill and feet black. Napier Broome Bay, North-west Australia" and

Alphacincla woodwardi didimus.

GENUS—CONIGRAVEA.

CONIGRAVEA Mathews, Austral

Av. Rec., Vol. II., pts. 2-3, p.

59, Oct. 23rd, 1913. Type

(by original designation) .. *Colluricincla parvula conigravi* Mathews.

I WROTE: "Differs from *Caleya* Mathews in its longer bill, longer wing and tail and different wing-formation; the third primary longest and the second primary equal to the sixth."

The bill is as long as the head, the culmen laterally compressed, the tip sharply hooked and decurved with a posterior notch, the culmen ridge semi-keeled and nearly straight; the nostrils hidden by appressed bristles and the rictal bristles strong and noticeable; the lower mandible strong, the interramal space short and feathered, about one-third the length of the mandible, the gonys a little upcurved.

The wing has the first primary short, about half the length of the second, which is equal to the sixth, and these are a little shorter than the third, fourth and fifth which are subequal, the third sometimes longest; the secondaries equal the ninth, and exceed the first primary in length.

The legs are of medium length, scutellate in front with seven scutes and bilaminate posteriorly; the toes are long and slender, the outer toe longer than the inner toe, the inner toe and claw being equal to the middle toe alone; the hind-toe stout, about equal to the outer toe, but with claw equal to the middle toe and claw as the hind-claw is longest.

I have divided the Australian "*Colluricincla*" into five groups, viz., *Colluricincla*, *Alphacincla*, *Conigravea*, *Caleya* and *Bowyeria*, and whatever the value these are distinct entities. It may be noted that for the last sixty to eighty years two groups were allowed by almost every ornithologist, one *Colluricincla*, the other named *Myiolestes* or *Pinarolestes*, and accepted even by lumpers. The present form, *Conigravea*, was practically unknown so that its reference to *Colluricincla* by Gould and its transference to *Pinarolestes* by Sharp indicate its peculiarities. The last named group, *Bowyeria*, is quite a recent discovery and as the succeeding notes show puzzled even Hartert as to its location.

CONIGRAVEA.

Hartert in his famous essay wrote: "I cannot see the reason why this species and *C. rufigaster* are separated generically and placed with *Pinarolestes*. *C. parvula* stands between the group of large species (*harmonica*, *brunnea*, etc.) and the small ones (*rufigaster*, *parvissima*, etc.). The eggs of the former and latter groups are quite alike, except in size."

On the same page, a little higher up, Hartert had written: "I may here add that '*Collyriocichla sibila*' and '*Pinarolestes boweri*,' in Sharpe's *Handlist*, IV., pp. 269, 270, are the same, and that in my opinion this species is a *Pinarolestes* and not a *Colluricincla*. The generic name was originally spelt *Colluricincla*, and Dr. Sharpe's recent spelling is an error."

Throughout the essay quoted Hartert's remarks are more or less inaccurate, and it is a little difficult to understand what he did mean in the above statements. Did he mean that he would admit *boweri* as a species of the genus *Pinarolestes*, and reject all the other Australian forms from that group, and call them all *Colluricincla*? Two years previously Rothschild and Hartert, dealing with Papuan birds, had classed *rufigaster* in *Pinarolestes* and had even written: "The existence of the latter (specific) name has probably escaped Dr. v. Madarász, because its author placed it with *Colluricincla* which is quite a distinct genus (from *Pinarolestes (rufigaster)*)."

Then in 1913, eight years later than the above mentioned account, Rothschild and Hartert use *Pinarolestes* for the *megarhyncha* series. Such records are very difficult to follow, as Rothschild and Hartert still maintain a lumping attitude in general, though sometimes splitting in particular cases, and no one knows whether this is one of the exceptions or not.

On the above my ascription of *parvula* to a distinct genus seems justified by Hartert's conclusions, while the reference of *boweri* to a distinct genus *Bowyeria* is indicated by Hartert, as he was confusing *Caleya* with *Pinarolestes*, which is a Fijian group of no close relationship, and he used *Pinarolestes* for *megarhyncha* which is the type form of my *Caleya*.

CONIGRAVEA PARVULA.

LITTLE SHRIKE-THRUSH.

(PLATE 480.)

COLLURICINCLA PARVULA Gould, Proc. Zool. Soc. (Lond.), 1845, p. 62, September: Port Essington, Northern Territory.

Colluricincla parvula Gould, Proc. Zool. Soc. (Lond.), 1845, p. 62; *id.*, Birds Austr., pt. XXI. (Vol. II., pl. 78), Dec. 1st, 1845; *id.*, Handb. Birds Austr., Vol. I., p. 225, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878; *id.*, Tab. List Austr. Birds, p. 5, 1888; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 92, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 97, 1902; Hartert, Nov. Zool., Vol. XII., p. 228, 1905 (N.W.A.); Mathews, Nov. Zool., Vol. XVIII., p. 370, 1912; H. L. White, Emu, Vol. XVI., p. 225, 1917 (N.T.); Campbell, *ib.*, Vol. XVIII., p. 184, 1919 (N.T.).

Colluricincla turdoides Pucheran, Voy. Pole Sud. Zool., Vol. III., p. 61, pl. II., Oct. 10th, 1853: Raffles Bay, Northern Territory.

Pinarolestes parvulus Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 296, 1877; Hall, Key Birds Austr., p. 11, 1899; Mathews, Handl. Birds Austral., p. 82, 1908.

Colluricincla parvula alligator Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 46, April 2nd, 1912: Alligator River, Northern Territory.

Colluricincla parvula conigravi Mathews, *ib.*, pt. 4., p. 94, Sept. 18th, 1912: Admiralty Gulf, North-west Australia.

Colluricincla parvula omissa Mathews, *ib.*, Vol. II., pts. 2 and 3, p. 68, Oct. 23rd, 1913: Melville Island, Northern Territory.

Conigravea parvula parvula Mathews, List Birds Austr., p. 239, 1913.

Conigravea parvula omissa Mathews, *ib.*

Conigravea parvula conigravi Mathews, *ib.*

Colluricincla parvula melvillensis Zietz, South Austr. Ornith., Vol. I., pt. 1., p. 16, Jan. 1st, 1914: Melville Island, Northern Territory.

Not *C. brunnea melvillensis* Zietz, *ib.*

DISTRIBUTION. Adjoining parts of Northern Territory and North-west Australia from Arnhem Land to Admiralty Gulf.

Adult female. General colour of the upper-surface olive-brown, including the top of the head, sides of face, sides of neck, hind-neck, entire back, upper tail-coverts, wings and tail; median and greater upper wing-coverts slightly tipped with dull buff, which indicates a double wing-bar; inner webs of bastard-wing, primary-coverts, and flight-quills dark brown with whitish margins to the last; rictal-bristles black;

LITTLE SHRIKE-THRUSH.

eye-ring and a line over the eye whitish ; lores, feathers in front of the eye and those covering the nostrils also whitish with black hair-like tips ; chin and throat silvery-white with black hair-like tips to the feathers and dark bases ; breast, abdomen, and sides of body dark isabelline-brown, with dark shaft lines on the breast, becoming paler on the lower abdomen, thighs, vent, and under tail-coverts ; axillaries and under wing-coverts pale fawn-colour, inclining to white on the marginal coverts ; under-surface of flight-quills hair-brown, slightly paler on the margins ; lower aspect of tail greyish-brown with white shafts to the feathers, which are somewhat paler at the tips. Eyes reddish-brown ; feet and legs leaden-blue. Bill leaden-black. Total length 210 mm. ; culmen 20, wing 98, tail 78, tarsus 29. Figured. Collected on Melville Island, Northern Territory, on the 25th of November, 1911.

Adult male. Similar to the adult female.

Eggs. From two to three for a setting. Swollen oval in shape, ground colour dull white, finely and closely marked all over with spots and specks of pale to dark olive-brown, and dull purplish-grey, and inclined to become more closely set together towards the larger end. Surface of shell fine, smooth and rather glossy. They measure 25 mm. by 19. Another clutch of two, which have a white ground-colour, have scarcely any markings except those forming a cap at the larger end of each specimen.

Nest. Cup-shaped, and composed of strips of bark and placed in a hollow portion of a tree.

Breeding season. December, January.

AGAIN Gould must be quoted : " This species, to which I have given the name of *parvula*, from the circumstance of it being the smallest of the genus that has come under my notice, is a native of Port Essington and the neighbouring parts of the northern coast of Australia. Gilbert, to whose notes I must refer for all that is known about it, states that it is 'an inhabitant of the thickets, is an extremely shy bird, and is generally seen on or near the ground. Its note is a fine thrush-like tone, very clear, loud, and melodious. The stomach is muscular, and the food consists of insects of various kinds, but principally of coleoptera.' "

Owing to the very restricted range of this peculiar form very little has been recorded of its habits.

Mr. J. P. Rogers wrote from Melville Island : " Cooper's Camp. Nov. 20, 1911. This species is numerous and is usually found in the dense growths along the creeks or in the mangroves. The note is a loud whistle which slightly resembles that of *Colluricincla brunnea*. Dec. 16, 1911. Very few seen lately. Jan 13, 1912. 10 miles S.E. of Snake Bay. Very common here in the swamps and small jungles. Feb. 5, 1912. Cooper's Camp. Very few seen here now."

H. L. White has recorded McLennan's notes as : " King River. Fairly plentiful in mangroves. One pair was met with in small patch of scrub a mile away from the river. Stomach, remains of beetles."

THE BIRDS OF AUSTRALIA.

It is an extraordinary fact that there is a noticeable variation in coloration in this species with its restricted range, and I have named three forms thus :

Colluricincla parvula alligator.

"Differs from *C. p. parvula* in its lighter upper-surface and longer bill. Alligator River, Northern Territory."

Colluricincla parvula conigravi.

"Differs from *C. p. alligator* in its larger size and lighter under-surface. Admiralty Gulf, North-west Australia."

Colluricincla parvula omissa.

"Differs from *C. p. parvula* Gould (from Port Essington: typical specimens in the British Museum) in its much greyer coloration above and in its much paler coloration below. Melville Island, Northern Territory."

I introduced the new genus name *Conigravea* for this group, and in my 1913 "List" arranged *C. turdoides* Pucheran from Raffles Bay and *C. p. alligator* from the Alligator River as synonyms of the typical form from Port Essington, and allowed the Melville Island and North-west Australian forms as valid.

Zietz recording birds from Melville Island and overlooking my description proposed

Colluricincla parvula melvillensis.

of which he wrote: "Upper-surface much darker and bill longer than mainland specimens. Wing 95-101, bill 22-23; mainland specimen, wing 93, bill 20."

It would be interesting to know where the "mainland specimen" used for comparison was obtained, as the differences cited by Zietz do not agree with my definition above quoted.

Again Campbell has written about the birds collected by McLennan at the King River: "Two ♂♂ (wing 100 mm.), 1 ♀. Uniform olive-brown above, and the smallest of its kind."

At the present time it seems best to leave the names and forms as given in my 1913 "List," though later adjustment is possible thus:

Conigravea parvula parvula (Gould).

From Alligator River to Raffles Bay,
Northern Territory.

Conigravea parvula omissa (Mathews).

Melville Island, Northern Territory.

Conigravea parvula conigravi (Mathews).

North-west Australia.

GENUS—CALEYA.

CALEYA Mathews, Austral Av.

Rec., Vol. II., pts. 2 & 3, p. 59,

Oct. 23rd, 1913. Type (by

original designation) .. *Colluricincla rufogaster* Gould.

Myiophila Fitzinger, Sitzb. Math.

Nat. K. Akad. Wissen. Wien.

Bd. XLVI. p. 215, 1862.

Type (by monotypy) .. *Muscicapa megarhyncha* Quoy & Gaimard.

Not *Myiophila* Reichenbach, Av. Syst. Nat., pl. LXVII., March, 1850, ? *nom. nud.*, *nom. indet.*; Gray, Cat. Gen. Subgen. Birds, p. 48, April, 1855.

THIS genus was thus diagnosed: "Differs from *Pinarolestes* Sharpe in its less compressed bill, longer wing and stronger feet, and different wing formation; the fifth primary longest and the second equal to the tenth."

Ramsay in 1888 recorded: "I cannot agree with Mr. Sharpe in including *Collyriocinclæ rufogaster*, *C. parvulus*, and *C. macrorhynchus* in his genus *Pinarolestes*, as he founds this new genus on *Myiolestes vitiensis* Auct.; a bird differing greatly even in habits and nidification from the true *Collyriocinclæ*, to which the above named species belong."

This group consists of small *Colluricinclæ* birds with the bill longer than the head, laterally compressed with a sharp hooked tip and the nostrils hidden by appressed bristles and the rictal bristles prominent. The wing formula differs appreciably, the first primary short, about equal to half the length of the third, the second intermediate and about equal to the tenth primary and the secondaries; the third primary is equal to the seventh and the fourth, fifth and sixth are little longer, the fifth being the longest. The tail is long and square as usual. The legs are rather short and stout, the front of the tarsus bearing five pronounced scutes, the hind part bilaminate; the hind-claw is longest, but the hind-toe and claw is shorter than the middle toe and claw; the outer toe longer than the inner toe, and the inner toe and claw equal to the middle toe alone.

This is the New Guinea group confused by recent writers with *Pinarolestes*.

CALEYA MEGARHYNCHA.

RUFOUS-BREASTED SHRIKE-THRUSH.

(PLATE 481.)

MUSCICAPA MEGARHYNCHA Quoy et Gaimard, Voy. de l'Astrol. Zool., Vol. I., p. 172, pl. 3, f. 1 (pref. June 29th), 1830 : Dorey Harbour, North-west New Guinea.

Colluricincla rufogaster Gould, Proc. Zool. Soc. (Lond.), 1845, p. 80, Oct. 1st : Clarence River, New South Wales.

*Colluricincla rufogaster** Gould, Proc. Zool. Soc. (Lond.), 1845, p. 80 ; *id.*, Introd. Birds Austr., p. 38, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 226, 1865 ; Diggles, Ornith. Austr., pt. VII., 1866 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878 ; *id.*, Tab. List Austr. Birds, p. 5, 1888 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 93, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 100, 1902 ; Broadbent, Emu, Vol. X., p. 236, 1910 ; Macgillivray, *ib.*, Vol. XIII., p. 174, 1914 ; S. A. White, *ib.*, Vol. XIX., p. 225, 1920.

Myiolestes gouldii G. R. Gray, Proc. Zool. Soc. (Lond.), 1858, p. 180, July 13th : Brown's River (type locality) and Barnard Isles, Queensland ; Ramsay, Tab. List Austr. Birds, p. 35, 1888.

Myiolestes griseatus G. R. Gray, Proc. Zool. Soc. (Lond.) 1858, p. 180, July 13th : Cape York (type locality) and Dunk's Island, Queensland ; Ramsay, Tab. List Austr. Birds, p. 35, 1888.

Colluricincla parvissima Gould, Ann. Mag. Nat. Hist., Ser. IV., Vol. X., p. 114, Aug., 1872 : Rockingham Bay, Queensland ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 181, 1878 ; *id.*, Tab. List Austr. Birds, p. 5, 1888 ; North, Rec. Austr. Mus., Vol. III., p. 50, 1897 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 94, 1901 ; Campbell and Barnard, Emu, Vol. XVII., p. 28, 1917 ; Macgillivray, *ib.*, p. 202, 1918 ; Campbell, *ib.*, Vol. XX., p. 62, 1920 ; *id.*, *ib.*, p. 113, pl. x., 1921.

Colluricincla parvula (error only) Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 585 ; Masters, Proc. Linn. Soc. N.S.W., Vol. I., p. 50, 1876.

Pinarolestes rufigaster Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 296, 1877 ; Hall, Key Birds Austr., p. 11, 1899 ; Cornwall, Emu, Vol. VII., p. 174, 1908.

Pinarolestes rufiventris Sharpe, Handl. Gen. Sp. Birds, Vol. IV., p. 270, 1903 ; Mathews, Handl. Birds Austral., p. 82, 1908 ; Barnard, Emu, Vol. XI., p. 27, 1911.

* Also spelt *rufigaster*.



H. Grönvold. del

Witherby & Co

CALEYA MEGARHYNCHA.
(RUFous-BREASTED SHRIKE-THRUSH).

BOWYERIA BOWERI.
(STRIPE-BREASTED SHRIKE-THRUSH).

RUFOUS-BREASTED SHRIKE-THRUSH.

Collyriocincla cerviniventris North, Rec. Austr. Mus., Vol. III., p. 49, Aug. 5th, 1897 : Dawson River, South Queensland ; Hall, Key Birds Austr., p. 11, 1899 ; Mathews, Handl. Birds Austral., p. 82, 1908.

Pinarolestes megarhyncha rufogaster Rothschild and Hartert, Nov. Zool., Vol. X., p. 101, 1903.

Colluricincla megarhyncha rufogaster Mathews, Nov. Zool., Vol. XVIII., p. 371, 1912.

Colluricincla megarhyncha cerviniventris Mathews, *ib.*

Colluricincla megarhyncha gouldii Mathews, *ib.*

Colluricincla megarhyncha griseata Mathews, *ib.*

Caleya megarhyncha rufogaster Mathews, List Birds Austr., p. 239, 1913.

Caleya megarhyncha cerviniventris Mathews, *ib.*

Caleya megarhyncha gouldii Mathews, *ib.*, p. 240.

Caleya megarhyncha griseata Mathews, *ib.*, p. 115.

Caleya megarhyncha normani Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 100, Sept. 24th, 1914 : Norman River, Queensland.

DISTRIBUTION. Queensland, from Cape York to New South Wales ; Clarence River.

Adult female. General colour of the upper-surface olive-brown, including the crown of the head, back, wings, and tail with a slight tinge of grey ; inner webs of bastard-wing and primary-coverts dark brown ; inner webs of flight-quills blackish-brown with pale margins ; some of the outer tail-feathers show traces of obsolete cross-bars ; sides of face similar to the back but paler ; rictal-bristles black ; lores, feathers in front of the eye, and those covering the nostrils whitish at the base with black hair-like tips ; chin and throat also whitish with black hair-like tips to the feathers and tinged with pale fawn-colour ; remainder of the under-surface fawn-colour including the breast, abdomen, sides of the body, thighs, under tail-coverts, axillaries, and under wing-coverts, somewhat brighter on the last ; sides of breast similar to the back with a few indicated lines on the middle of the breast ; under-surface of flight-quills dark hair-brown with pale margins ; lower aspect of tail greyish-brown with white shafts to the feathers. Bill very light grey-purple ; eyes dark brown ; feet grey-purple. Total length 175 mm. ; culmen 18, wing 92, tail 73, tarsus 27. Figured. Collected at Cairns, North Queensland, in August, 1908.

Adult male. Similar to the adult female.

Eggs. Usually two to three for a sitting, varying considerably in size, shape, and general markings. In shape they vary from ovals to swollen, pointed, elongate, and very rounded ovals. A very rounded specimen measures 22 mm. by 18 ; while a long and elongate example measures 29 mm. by 18. In ground-colour they vary from pearly-white to very pale pinkish-white, and dull creamy-white. As regards the general markings they vary very much, and in rare instances some are pure white, while others are very heavily spotted and blotched. A typical clutch of three eggs is slightly swollen oval in shape, ground-colour pale pinkish-white, heavily spotted and blotched, especially about the larger end, with very rich reddish-brown, and dull purplish-grey. Surface of shell fine, smooth, and very glossy. They measure 27 mm. by 19. Another clutch is oval in shape and pearly-white, and possess only a few minute specks of colouring at the larger end of each specimen, and measures 27 mm. by 19.

Nest. Is rather a large cup-shaped structure, composed of dried leaves and strips of bark, rootlets, etc., and lined with finer roots, dead fern and orchid stems, as well as grass ; and over all measures about 5 to 5½ inches across. It is usually built in a very

THE BIRDS OF AUSTRALIA.

sheltered and bushy place in a mass of vines, bush or tree, and placed from 6 to 20 feet or so from the ground ; and generally in a scrubby place where timber and vegetation is dense.

Breeding season. September to January.

OUT of six "species" of *Colluricincla sensu lato* known to him Gould described five himself, and of one of the most distinct he wrote (apparently half dismayed at his own audacity): "I assigned this name to a bird sent to me by the late F. Strange from the brushes of the Clarence in New South Wales ; it may hereafter prove to be identical with the last mentioned species, *C. parvula*, the form and admeasurements being precisely the same ; but the bird from New South Wales has a lighter coloured bill, and the whole of the under-surface washed with deep rufous. Strange informed me that the bird 'is tolerably common in the brushes skirting the lower part of the Clarence and Richmond rivers,' but I never saw it out of the brushes or on the ground, as you may *C. harmonica* and the other species of the genus. It imitates the note of *Ptilonorhynchus holosericeus* so exactly that I have often been deceived by it. You mostly meet with the bird amongst the vines and supplejacks trailing over a few stunted trees ; here it will be seen hopping up the thick limbs in search of food just after the manner of the members of the genus *Climacteris* ; like them too, they are continually on the move."

Mr. J. W. Mellor has written me : "I came across this species while on the Tweed River in New South Wales ; the birds were fairly distributed throughout the scrub along the course of the stream right from its source near Mount Warning to the mouth near the boundary line between New South Wales and Queensland. In the latter state I met with it on several occasions. It searches about in the thickets, securing its insect food among the decaying leaves, etc."

Ramsay wrote from Rockingham Bay, Queensland : "It is one of the most common birds on the Herbert River, and has a very pleasing and varied note, imitating and mocking almost every bird it hears. It is lively and graceful in all its actions, the first up in the morning and the last to roost at night ; the scrubs resound with its pleasing song."

Macgillivray and Barnard record it as common at Cape York, but no field notes are given.

Gould had described his *Colluricincla rufigaster* when Gray received collections of birds from the Aru Islands to examine. *C. rufigaster* had been named from the Clarence River, New South Wales, and that locality was quite a long way away, with also a different faunula from the Aru Islands. Gray compared the Aru Island representative of a *Colluricincl*oid facies with

RUFOUS-BREASTED SHRIKE-THRUSH.

the specimens in the British Museum and, noting its relationship with the New Guinea *megarhynchus*, described it as a new species *Myiolestes aruensis*. That genus was in use for these smaller Colluricincloid birds but has since been relegated to its type series. In the Museum, Gray had specimens of *C. rufigaster* but they were quite unlike and so were never mentioned. He, however, found four birds from Northern Australia which were not unlike the Aru Island and New Guinea birds, and he proposed two new species with the following descriptions:

“*Myiolestes gouldii* n. sp. Allied to *M. megarhynchus*, but is of a greyish-olive, with deep rusty colour on the greater wing-coverts and outer margins of quills; chin white, with a brown line down the shaft of each feather; a small rusty spot behind each eye. This mark points out at once this species from the others. *Hab.* Brown’s River, Australia; and Barnard Isles. In British Museum.

“*Myiolestes griseatus* n. sp. Differs from the others by being decidedly greyish-olive on the upper-surface, and by not having any rusty colour on the wings; the under-surface rusty-white, which becomes white on the throat.

“*Hab.* Cape York, Australia; and Dunk’s Island. In British Museum.”

Through some misunderstanding, at present not determinable, Gould did not include either of these in his “Handbook,” although one had been named after him and both were in the British Museum. Through this lapse, a few years afterwards, Gould described from Rockingham Bay as a new species *Colluricincla parvissima*. The specific name chosen is, from the viewpoint of philologists, one of the extraordinary curiosities of ornithological nomenclature.

Ramsay in his 1888 “List” included *C. parvissima* with a note: “*C. parvissima* is a smaller race of *C. rufigaster*,” but at the end under the heading: “Doubtful species noted *Myiolestes gouldii* and *griseatus*”. Why they were regarded as doubtful is beyond the understanding of any ordinary ornithologist, as the descriptions are excellent, and the types are in existence in a very accessible Museum.

Later, North described *Collyriocinclla cerviniventris* from the Dawson River, Queensland, writing: “This is the inland representative of *C. rufigaster* of the coastal brushes, from which it may be distinguished by its longer and thinner bill, and by its very much paler upper and under-surface,” and noted that *C. rufigaster* ranged from the Clarence River, New South Wales, northward to Cairns, Queensland; the wing of adult male from the former locality measuring 3·9 inches and from the latter from 3·8 to 3·9 inches”. *C. parvissima* he regarded as a decidedly smaller race with a wing

THE BIRDS OF AUSTRALIA.

measuring 3·5 inches, and with the upper parts being more strongly washed with olive, and ranging from Cape York south to the Herbert River.

With a knowledge of New Guinea forms Hartert concluded that these were only subspecifically separable from *C. megarhyncha* of that country.

I examined the series for the preparation of my "Reference List" and agreed with that disposition and also with Gray's separation of the Cape York and Brown's River and revived his names, *which are in no sense doubtful*. I thereupon arranged thus:

Colluricincla megarhyncha rufogaster Gould.

New South Wales.

Colluricincla megarhyncha cerviniventris North.

South Queensland.

Colluricincla megarhyncha gouldii (Gray).

Mid Queensland.

Colluricincla megarhyncha griseata (Gray).

North Queensland.

With the recognition of the genus name *Caleya* this arrangement was followed in my 1913 "List," but in the following year I named

Caleya megarhynchus normani.

"Differs from *C. m. cerviniventris* in being much paler underneath. Norman River, Queensland."

There is not sufficient material absolutely to determine the facts, but I am inclined to the opinion that *C. rufogaster* and its subspecies *C. m. normani* and *C. m. cerviniventris* constitute a distinct species from the northern group "*parvissima*," i.e., *C. m. gouldii* and *C. m. griseata*, which are certainly referable to the *megarhyncha* birds.

Campbell recording a specimen from Moa Island, Torres Straits, under the name *Colluricincla parvissima* has written: "Evidently a good northern race of *rufogaster*, being smaller, lighter coloured (buff-brown), and not so striped on the breast as the more southern form. The male is larger (wing 98 mm.) and browner (russet) on the secondaries and wing-coverts than the female (wing 93 mm.)—characteristic sexual distinctions, no doubt. *Caleya megarhyncha* (Quoy et Gaimard *Voy de l'Astrol*, I., p. 172, pl. 3), cited by Mr. Mathews, has a dark-coloured (warm sepia) upper-surface, likewise a New Guinea specimen in the National Museum, with its olive-brown back, and is therefore unlike *parvissima*. Again, Mr. Mathews gives priority to Gray's two names, *gouldi* and *griseata*, over *parvissima*. According to a good Australian authority, the late Dr. E. P. Ramsay, both Gray's names are doubtful as to species. That two distinct species should exist on islands so close to each other (and to the mainland) as Barnard Islands and Dunk Island

RUFIOUS-BREASTED SHRIKE-THRUSH.

—respectively the supposed habitats for *gouldi* and *griseata*—is extremely doubtful. Both names should be ‘decently forgotten.’ ”

I have already given the description and facts, and would point out that Gray’s two species were described from Brown’s River and Cape York respectively, and the specimens from Barnard Isles and Dunk’s Island only referred to the species differentiated.

Ramsay had written under the name “*C. parvula*” from Rockingham Bay, the type locality of Gould’s *C. parvissima*: “I noticed that individuals of this species are much more highly coloured and deeper in tint than those I obtained from the Richmond and Clarence Rivers in New South Wales.” This is quite true and in agreement with Gray’s *gouldii*, while Campbell has stated of the Moa Island bird, “lighter coloured . . . than the more southern form (*rufigaster*),” thus confirming Gray’s *griseatus*.

When Rothschild and Hartert monographed this group as regards New Guinea in 1903 (*Nov. Zool.*, Vol. X., pp. 99-101), they were ignorant of the Australian forms, writing: “We have a good series from Queensland and N.W. Australia (??), but it is possible that they are also several forms in Australia.”

They described the S.E. New Guinea form as differing from the typical N.W. New Guinea bird in its “much paler, less rufous underside and lighter throat. The upper-surface is generally a shade more olive, less rufous,” and they regarded the Australian form as differing from this S.E. New Guinea bird as having always a much paler, generally more greyish upperside, lighter and more uniform light buff throat and apparently paler bill.”

The majority of Queensland birds are darker than the New Guinea birds, the Cairns birds being especially dark, so apparently Rothschild and Hartert were using other specimens (? *parvula* from N.W. Australia ?) for comparison.

GENUS—BOWYERIA.

BOWYERIA Mathews, Austral Av. Rec., Vol. I.,
pt. 5, p. 114, Dec. 24th, 1912. Type (by
original designation) *Collyriocincla boweri* Ramsay.

I WROTE, upon the introduction of this genus: "Differs from *Pinarolestes* in its stouter heavier bill, and stronger feet, with longer wings and tail, and from *Colluricincla* in its much shorter wings and tail, though as stout in the bill and feet."

This monotypic genus constitutes one of those peculiar evolutions of the Cairns district, being quite distinct from *Colluricincla* or *Caleya* both of which live alongside. It approaches *Colluricincla* in size and coloration, but even the latter is peculiar.

The bill is stout, as long as the head, the culmen arched, tip sharp and decurved; the nostrils are not hidden, but are operculate ovals placed forward in a shallow groove; nasal bristles not prominent, but rictal bristles strong; under mandible stout, nearly as deep as the upper.

The wing has the fourth, fifth and sixth primaries subequal and longest; the third a little shorter and equal to the seventh; the second equal to the ninth but longer than the secondaries; the first primary is short, longer than half the length of the second, but shorter than half the length of the third. The tail is long and square.

The legs are rather long, and the scutes on the front of the tarsus are sometimes indistinct, the feet are comparatively delicate and the toes and claws slender.

Although Hartert said this was a *Pinarolestes*, Ramsay was quite correct in stating it had no close relationship with that genus, Hartert apparently overlooking the fact that *Pinarolestes* was founded on a very different Fijian bird.

Order PASSERIFORMES.

Family PRIONOPIDÆ.

No. 590.

BOWYERIA BOWERI.

STRIPE-BREASTED SHRIKE-THRUSH.

(PLATE 481.)

COLLYRIOCINCLA BOWERI Ramsay, Proc. Linn. Soc. N.S.W., Vol. X., pt. 2, p. 244, July 31st, 1885 : Cairns, North Queensland.

Collyriocincla boweri* Ramsay, Proc. Linn. Soc. N.S.W., Vol. X., p. 244, 1885; *id.*, Tab. List Austr. Birds, p. 5, 1888; De Vis, Proc. Roy. Soc. Queensld., Vol. VI., p. 248, 1889; Hall, Key Birds Austr., p. 11, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 92, 1901; Jackson, Emu, Vol. VIII., p. 239, 1909; Broadbent, *ib.*, Vol. X., p. 236, 1910; Mathews, Nov. Zool., Vol. XVIII., p. 371, 1912; Campbell, Emu, Vol. XIII., p. 68, pl. XII f. 3 (egg), 1913; North, Austr. Mus. Spec. Cat. No. 1, Vol. IV., p. 416, 1914; Campbell and Barnard, *ib.*, Vol. XVII., p. 28, 1917; Campbell, *ib.*, Vol. XIX., p. 161, pl. XXXII., 1920.

Colluricincla sibila De Vis, Proc. Roy. Soc. Queensland, Vol. V., pt. 5, p. 161, 1889 : Cardwell, Queensland; Sharpe, Handl. Gen. Sp. Birds, Vol. IV., p. 269, 1903.

Pinarolestes boweri Sharpe, *ib.*, p. 270; Mathews, Handl. Birds Austral., p. 82, 1908; Le Souëf, Emu, Vol. VIII., p. 61, 1908.

Bowyeria boweri Mathews, List Birds Austr., p. 240, 1913.

Bowyeria boweri kurandi Mathews, Austral. Av. Rec., Vol. III., pt. 3, p. 61, April 7th, 1916 : Kuranda, North Queensland.

Bowyeria boweri boweri Mathews, *ib.*

DISTRIBUTION. North Queensland; Cairns district only.

Adult male. General colour of the upper-surface slate-grey, including the top of the head, entire back, upper tail-coverts, tail, upper wing-coverts, and innermost secondaries; flight-quills blackish-brown, with pale ferrugineous on the outer margins and buffy-white on the inner ones which become deeper in colour on the inner secondaries; outer tail-feathers inclining to ochreous-brown; ear-coverts, sides of neck, and sides of breast similar to the back with a tinge of fawn-colour; rictal-bristles black; lores, feathers in front of the eye, and those covering the nostrils buffy-white with black hair-like tips; a supraloral streak which extends over to behind the eye fawn-colour; chin and throat pale fawn-colour with black hair-like tips to the feathers; lower throat and breast also fawn-colour with slate-grey shaft-lines; abdomen, flanks, thighs, under tail-coverts, axillaries, and under wing-coverts

* Also spelt *Colluricincla*, *Collyriocichla*, etc.

THE BIRDS OF AUSTRALIA.

uniform rich fawn-colour; under-surface of flight-quills dark brown with buff margins; lower aspect of tail greyish-brown, with white shafts to the feathers which are slightly tinged with fawn-colour on the inner edges. Bill dark horn; eyes dark brown; feet dark grey. Total length 195 mm.; culmen 21, wing 110, tail 81, tarsus 31. Figured. Collected at Cairns, North Queensland, in July, 1908.

Adult female. Similar to the adult male.

Immature. "May readily be distinguished by the streak of pale rufous feathers above the lores and above and below the eye; the outer webs of the quills are externally edged with pale olive-rufous, and only the feathers on the upper-parts of the fore-neck have greyish shaft-streaks." (North.)

Nest. A comparatively large open cup-shaped structure, placed in dense mass of foliage from 6 to 25 ft. from the ground; chiefly composed of dead leaves, bark, portions of thin vines and climbing plants, and lined with fine roots. External diameter of nest 5 to 6 inches, depth (inside) 2 to 2½ inches.

Eggs. Two to three for a sitting, two usually. They vary considerably in size, shape and general markings. In shape they vary from ovals, to swollen, pointed, elongate, and rather rounded ovals. A specimen of the rounded oval form measures 24 mm. by 19, while a long and elongate example measures 27 mm. by 20. In ground-colour they vary from white to pale pinkish-white, and creamy-white. The general markings vary very much, and in one form they cover the egg uniformly all over with minute markings very closely set together, while in another form they are very boldly blotched and spotted. Another clutch, very lengthened ovals in shape, has a ground-colour of a creamy-white, well spotted and blotched with markings of pale to dark olive-brown, and dull slate. This clutch measures 27 mm. by 20. Another clutch possesses rather a white ground-colour, and beautifully blotched with light to rich reddish-brown, and scattered markings of pale slate and grey.

The breeding season is during October to December.

THIS extraordinary development of the Colluricinclod form was described by Ramsay from specimens collected by that excellent ornithologist Bowyer-Bower, who fell a victim to his enthusiasm at a very early age. Ramsay named the species in honour of the collector and I followed up this by distinguishing the form generically with the collector's hyphenated first name.

Little has been written about this species on account of its rarity, though De Vis renamed the species three years after it was originally distinguished. The succeeding year De Vis rectified his error, but Sharpe overlooked the omission and included the two names as distinct species in different genera in his "Handlist." This gave Hartert the opportunity of pointing out the mistake, but he became confused as to the genera and stated this was a true *Pinarolestes*. Of course it is not, as *Pinarolestes* belongs to an entirely different Fijian group with little affinity as had been years before pointed out by Ramsay.

Broadbent's notes recorded in 1910 state: "First shot this new bird (*sibila*) in the black scrubs over Seaview Range, south of the Herbert River in 1883. This is a true mountain bird, not found in any of the low river

STRIPE-BREASTED SHRIKE-THRUSH.

scrubs. Found this bird on Bellenden Ker, at Palm Camp, 4,000 feet above sea level. Also common in the high scrubs in the Herberton district."

North quoted the following note by R. Grant: "In 1889 we found Bower's Shrike-Thrush in pairs all through the scrubs around Boar Pocket, about thirty miles from Cairns; also on the upper Russell River around Lake Eicham. They were not shy and would often fly down from a low branch to the ground, quite close to one, and pick up some stray insect, and return to the branch again. They were only met with low down in the scrub, generally from ten to twenty feet from the ground. . ."

Although practically nothing was known of the habits of this rare species, Campbell and Barnard, reviewing the birds of N. Queensland, where they had been investigating, simply wrote: "The Bower-Thrush is a fine species, and although reddish (rusty) like the last mentioned (*parvissima*) Thrush, is large and has its breast more striped. It was mostly seen in the ranges. As Broadbent points out, it is a true mountain bird. It has a loud and distinctive call."

What Campbell and Barnard mean by calling this bird "reddish (rusty)" I cannot understand.

I described

Bowyeria boweri kurandi.

as being "darker above and below" from Kuranda, but this is not reddish in any way on the upper-surface, this species being easily distinguished from all the other smaller Colluricincloid birds by its *lack* of reddish on the upper-surface.

The plate given in the *Emu* shows the under-surface of this bird and no description is given of the back, so that the wording still remains obscure. In the same place Campbell observed that *C. rufogaster* had not been figured, overlooking the fact that the Australian ornithologist Diggles had published a painting more than fifty years ago.

GENUS—GRALLINA.

GRALLINA Vieillot, Analyse nouv. Ornith., p. 42,
 April 14th, 1816. Type (by monotypy).. *G. melanoleuca*
 = *Corvus cyanoleucus* Latham.

Also spelt—
Gallina, *id.*, *ib.*, p. 68.

Tanypus Oppel, Denkschr. Ak. Wissen. Münch.
 1811-12, p. 159, 1812. Type (by monotypy) *Tanypus australis* Oppel =
 = *Corvus cyanoleucus* Latham.

Not *Tanypus* Meigen, Mag. fur Insectk. (Illiger), Vol. II., p. 261, 1803.

Colobathris Gloger, Hand.- u. Hilfsb., pt. iv., p. 304, 1841 (early).
 New name for *Grallina* Vieillot.

Grallipes Sundevall, Meth. Nat. Av. Disp. Tent., pt. II., p. 155, June, 1873.
 New name for *Grallina* Vieillot.

MEDIUM sized Passerine birds with short bill, long wings, long square tail and long stout legs and stout feet.

The bill is short and straight, not as long as the head, which is small for the size of the bird; the culmen slightly curved, tip very little decurved and with a slight posterior notch; the bill is slender, laterally compressed with little basal expansion; the nostrils are large ovals placed near the base of the mandible, not hidden by feathers, which, however, approach the nasal orifices; the nasal bristles are few and obsolete and the rictal, about half a dozen in number, not very noticeable; the lower mandible of medium depth, with the interramal space more than one-third the length of the mandible. The wings are very long with the third, fourth, fifth and sixth primaries forming the tip of the wings, the fourth and fifth subequal and slightly the longest; the second a little shorter and equal to the eighth, but longer than the secondaries; the first primary short, about half the length of the second. The tail very long and square.

The legs are very long and strong, the front portion of the tarsus scutellate with seven plain scutes; the hinder-portion bilaminate; the toes are short and stout, the claws small, not much curved, the hind-claw longest; the middle toe and claw longest, the inner and outer toes subequal and inner toe and claw scarcely longer than the middle toe alone; the hind-toe is about equal to the

GRALLINA.

inner toe, but is stouter and the claw much longer, but the hind-toe and claw is shorter than the middle toe and claw.

This genus forms an object lesson on recent systematic bird classification. Unfortunately its coloration is black and white and therefore gave no clue to those who would utilise structural features alone in their scheme of bird arrangements. I might point out that those who profess to ignore colour and depend on structural features alone simply deceive themselves, as all the time their affinities are guided by the colour-scheme shown by the birds. In order to show their independence of this colour-scheme they will at times force a bird of entirely different coloration into a fairly natural genus and make an incongruous association. However, as they also state they do not believe in natural genera they have little real interest in bird taxonomy and their arrangements deserve little consideration. The desire of the scientific taxonomist is to achieve some kind of order out of the chaos recognised by such workers.

Gould was interested in taxonomy, although in his day very little was known regarding exact taxonomic work as understood by twentieth century students in other branches of zoology. In his accounts he accepted every view-point, and it is certain that with regard to the grouping of Australian birds, notwithstanding some errors, he approached nearer the truth than the later cabinet naturalists of the British Museum.

In the present instance he wrote in 1865 "The only known species of this form is one of the anomalies of the Australian avifauna; for its alliance to any group with which we are acquainted is very limited. Its colouring and general contour remind us of the *Motacillæ*; but its habits and mode of nidification clearly indicate that it must not be associated with those birds. Uncertain where to place it, I shall assign it the same position in the present as in the folio work; not that it has any special affinity to the birds which immediately precede or follow it. I find it impossible to arrange the birds of a single country in a linear series without numerous *hiati*."

The birds preceding were the Magpies and Crow-Shrikes, which Gould included in the "Laniadæ," and the birds succeeding were the Graucali, which he included in the "Campephaginæ."

Since Gould's time I am unaware of any scientific attempt to elucidate the relationship of this aberrant form.

However, from New Guinea, Salvadori described another species of *Grallina* under the name *G. bruijni*, and examination of specimens of this species suggests the solution. The New Guinea birds have the same style of coloration but are much smaller; the color-pattern makes them unquestionably closely allied and also serves to solve the problem. The New Guinea bird has the bill long and thin, quite like that of *Grallina*, but proportionately longer, a couple of

THE BIRDS OF AUSTRALIA.

small rictal bristles being noted. The wing formula is very different; the first primary being more than half the length of the second, which is shorter than the secondaries; the third is about equal to the seventh, and the fourth, fifth and sixth are subequal and longest. The tail is long and square, the feet are long and delicate, the front of the tarsus booted and the claws more curved. While thus providing the clue to the relationship of *Grallina*, the New Guinea *G. bruijni* Salvadori must be considered generically different, and even Hartert has used for it the genus name *Pomareopsis* given by Oustalet in 1880. Oustalet described the species as *Pomareopsis semiatra* and this suggested *Pomare* as its ally, but its nearest relations are the Monarchoid birds.

The examination of this smaller Grallinoid bird suggested as its allies the "*Piezorhynchus*" group of Austral-New Guinea Flycatchers, and there I found species very similar in coloration and I cannot see a great deal of structural difference. I therefore deduce that the Australian *Grallina* has evolved by isolation in Australia from the ancestors of these, and that due to its peculiar specialised habits it has developed long legs, bulkier size and long wings, though the bill has only narrowed and not much lengthened.



Witherby & Co

H. Grönvold del

GRALLINA CYANOLEUCA.
(MAGPIE-LARK).

GRALLINA CYANOLEUCA.

MAGPIE-LARK.

(PLATE 482.)

CORVUS CYANOLEUCUS Latham, Index Ornith. Suppl., p. xxv. (after May), 1801: New South Wales (based on Watling Drawing No. 62).

Corvus cyanoleucus Latham, Index Ornith. Suppl., p. xxv., 1801.

Blue and White Crow Latham, Gen. Synops. Birds Suppl. II., p. 117, 1801.

Gracula picata Latham, Index Ornith. Suppl., p. xxix., 1801 (after May), ex General Davies' coll.=New South Wales.

Pied Grakle Latham, Gen. Synops. Birds Suppl. II., p. 130, 1801.

Tanypus australis Oppel, Denkschr. Aken Wissen. Münch., 1811-12, p. 164, 1812: New Holland=New South Wales.

Merops picatus Shaw, Gen. Zool., Vol. VIII., p. 165, 1812: New Holland=New South Wales.

Gallina (sic) *melanoleuca* Vieillot, Analyse Nouv. Ornith., p. 68, April 14th, 1816: New South Wales; *id.*, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIII., p. 401, 1817; Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 232, 1827.

Cracticus cyanoleucus Vieillot, Nouv. Dict. d'Hist. Nat., Vol. V., p. 356, 1817.

Tanypus melanoleucus Voigt, Regne Animal (Cuvier), Vol. I., p. 490, 1831.

Grallina australis Gray, List Genera Birds, 2nd ed., p. 33, 1841; Gould, Birds Austr., pt. xi. (Vol. II., pl. 54), June 1st, 1843.

Grallina cyanoleuca G. R. Gray, Annals Mag. Nat. Hist., Vol. XI., p. 190, 1843.

Grallina picata Strickland, *ib.*, p. 335; Gould, Handb. Birds Austr., Vol. I., p. 188, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 272, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; *id.*, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 10, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 87, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 88, 1902; Le Souëf, Emu, Vol. II., p. 88, 1902 (N.A.); Hill, *ib.*, p. 162, 1903 (Vic.); Milligan, *ib.*, Vol. III., p. 16, 1903 (W.A.); Carter, *ib.*, p. 35 (W.A.); Batey, *ib.*, Vol. VII., p. 5, 1907 (Vic.); Austin, *ib.*, p. 28 (N.S.W.); Berney, *ib.*, p. 81, 1907 (Food); Cornwall, *ib.*, p. 174, 1908 (N.Z.); Mathews, Handl. Birds Austral., p. 82, 1908; Ford, Emu, Vol. VIII., p. 31, 1908 (Vic.); Dove, *ib.*, p. 67 (Vic.); Whitlock, *ib.*, p. 179, 1909 (W.A.); Mathews, *ib.*, Vol. IX., p. 12, 1909 (N.W.A.); Crossmann, *ib.*, p. 89 (W.A.); Cleland, *ib.*, p. 222, 1910 (Food); Gubanyi, *ib.*, Vol. X., p. 119 (N.S.W.);

THE BIRDS OF AUSTRALIA.

Hill, *ib.*, p. 281, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 27, 1911 (N.Q.); Cleland, *ib.*, p. 87 (Food); Shufeldt, *ib.*, p. 201, pl. xx. (egg), 1912; Cleland, *ib.*, Vol. XII., p. 12, 1912 (Food); Wilson, *ib.*, p. 37 (Vic.); S. A. White, *ib.*, p. 130 (S.A.); Macgillivray, *ib.*, Vol. XIII., p. 174, 1914 (N.Q.); S. A. White, *ib.*, Vol. XIV., p. 142, 1915 (Mallacoota); Austin, *ib.*, p. 170, pl. xiv. (N.S.W.); H. L. White, *ib.*, Vol. XVI., p. 230, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII., p. 29, 1917 (N.Q.); Redhead, *ib.*, p. 110 (N.S.W.); Macgillivray, *ib.*, p. 203, 1918 (N.Q.); Ford, *ib.*, p. 236; Cleland, *ib.*, Vol. XVIII., p. 282, 1919 (N.S.W.); Kersey, *ib.*, Vol. XIX., p. 52 (Q.); Le Souëf and Macpherson, *ib.*, Vol. XX., p. 88, 1920 (N.S.W.); Ashby, *ib.*, p. 135, 1921 (W.A.); Alexander, *ib.*, p. 166 (W.A.); Vidgen, *ib.*, p. 228 (N.Q.); Le Souëf, *ib.*, p. 245 (N.W.A.).

Grallina cyanoleuca cyanoleuca Mathews, Nov. Zool., Vol. XVIII., p. 371, 1912; *id.*, List Birds Austr., p. 240, 1913; Belcher, Birds Geelong, p. 300, 1914; S. A. White, Emu, Vol. XIV., p. 189, 1915.

Grallina cyanoleuca neglecta Mathews, Nov. Zool., Vol. XVIII., p. 372, Jan. 31st, 1912; Parry's Creek, North-west Australia; *id.*, Austral Av. Rec., Vol. 2, p. 60, 1912; *id.*, List Birds Austr., p. 241, 1913; Söderberg, Kungl. Svenska Vet. Handl., Band 52, p. 97, 1918.

DISTRIBUTION. Australia generally, but more or less restricted to interior owing to peculiar habits. Not coastal in heavy forest *nor* Tasmania.

Adult male. General colour both above and below black and white; on the upper-surface, the black glossed with steel-blue, includes the top of the head, lores, feathers round the eye and those covering the nostrils, hind-neck, mantle and upper-back, scapulars, bastard-wing, flight-quills, and subterminal portion of tail. On the under-surface the same colour is continued on the chin, throat, sides of neck, under-surface of flight-quills, and a broad subterminal band on the tail. The white on the upper parts is distributed as follows:—a few white feathers on the fore-part of the head, a broad line over the eye, ear-coverts and a patch on the sides of the neck, lesser and greater wing-coverts, bases and tips of most of the flight-quills, lower back, rump, upper tail-coverts, and basal portion and tip of tail. On the under-parts the white includes the lower breast, abdomen, sides of body, thighs, axillaries, under wing-coverts, under tail-coverts, and the basal portion and tip of tail. Eyes pale yellow, feet blue-black, bill white. Total length 282 mm.; culmen 22, wing 180, tail 121, tarsus 43. Figured. Collected at Normanton, Gulf of Carpentaria, Queensland, on the 13th of June, 1914.

Adult female. Similar in general coloration to the adult male but differs in having the fore-part of the head, lores, fore-part of face, chin and throat white, and the space immediately above the eye black. Eyes pale yellow, feet blue-black, bill ivory-white. Total length 269 mm.; culmen 20, wing 168, tail 109, tarsus 41. Figured. Collected at Normanton, Gulf of Carpentaria, Queensland, on the 15th of January, 1914.

The eggs of this species are subject to considerable variation in their ground-colour and general disposition of the markings, as well as in their size and shape. In some instances the eggs are pure white, while on the other hand some forms have a beautiful pinkish ground-colour, very heavily blotched, and particularly at the larger end, with rich pinkish-red and pale purple. The eggs vary from three to six in number for a setting. The surface of the shell varies from smooth and glossy to dull and

MAGPIE-LARK.

slightly rough. In shape they vary very much and take the following forms :—oval, short oval, lengthened oval, swollen and rounded oval, and pyriform. In size they also greatly vary, and an egg from a small four-egg clutch measures 24 mm. by 20, while one from a large four-egg clutch measures 31 mm. by 21. Generally the largest and most richly marked eggs are from Tasmania and the more southern parts of Australia; and the farther north they are found the smaller the egg, as a rule, and the less colouring; but this is also the case with the eggs of very many other species. A clutch of the most usual form found is oval in shape, ground-colour pale pinkish-white, spotted and blotched, particularly about the larger end, with pinkish-red and purple. Surface of shell slightly glossy. Another clutch is very swollen or rounded oval in shape, ground-colour pale creamy-white, spotted and blotched (almost entirely confined to a cap at the larger end) with pale to dark rusty-brown, and dull purple. Surface of shell smooth, and slightly glossy.

Nest. A large bowl-shaped structure, composed of mud, which varies from grey and chocolate-brown to black, according to locality, and is wonderfully reinforced with horse-hair, grass and feathers, etc., the lining usually consists of grass, and feathers are not often used.

The nest is generally built upon a bare horizontal limb of a tree, and frequently one is selected standing in or near water. Nest measures from 5 to 6 inches across over all, egg cavity $4\frac{1}{2}$ to nearly 5 inches across, by $2\frac{1}{4}$ to $2\frac{3}{4}$ inches deep. Depth of nest over all about 5 inches. The nests are placed at heights varying from 5 to 50 feet or more.

Breeding season. August to January.

RECENTLY a note has been published regarding Watling by one of my critics, and therein my mistakes are emphasized; but I would apologise by noting that these were not mistakes but attempts to find out the truth, which is very involved in this connection, and assistance from outside sources such as Dixson has given is very valuable and most desirable. It must be once more emphasized that the "Lambert" drawings are a distinct entity from the "Watling" drawings, and that Latham described his species from the former and not from the latter. Sharpe reviewed the "Watling" drawings as being the type series, which they are not, and I followed Sharpe *until I independently found out the truth and corrected the error*. My acceptance of Sharpe's conclusions can scarcely be termed a mistake.

In the present instance the facts are even more complicated than is at first apparent, and I will reproduce them in full after giving the life histories and habits of the species as these are more interesting to the majority of my readers.

The first field notes appear to be those given by Gould who wrote: "Those that came under my observation in New South Wales frequented alluvial flats, sides of creeks and rivulets. Few of the Australian birds are more attractive or more elegant and graceful in their actions, and these, combined with its tame and familiar disposition must ever obtain for it the friendship and protection of the settlers, whose verandahs and housetops it constantly

THE BIRDS OF AUSTRALIA.

visits, running along the latter like the Pied Wagtail of our own island (*i.e.*, Great Britain). Gilbert states that in Western Australia he observed it congregate in large families on the banks and muddy flats of the lakes round Perth, while in the interior he only met with it in pairs, or at most in small groups of not more than four or five together; he further observes, that at Port Essington, on the north coast, it would seem to be only an occasional visitant, for on his arrival there in July it was tolerably abundant around the lakes and swamps, but from the setting in of the rainy season in November to his leaving that part of the country in the following March, not an individual was to be seen; it is evident, therefore, that the bird removes from one locality to another according to the season and the more or less abundance of its peculiar food. I believe it feeds solely upon insects and their larvæ, particularly grasshoppers and coleoptera. The flight of the Pied *Grallina* is very peculiar, unlike that of any other Australian bird that came under my notice, and is performed in a straight line with a heavy flapping motion of the wings. Its natural note is a peculiarly shrill whining whistle often repeated. It breeds in October and November."

Mr. Thos. P. Austin has written me from Cobbara, New South Wales: "This is a resident species, and probably the most common bird of the district, as it is to be met with everywhere near the vicinity of water. In the autumn it forms into small flocks, and they spend the greater part of the day feeding on the margins of rivers, swamps, dams, lagoons, etc., but is also frequently met with upon the ground in open paddocks. When disturbed they fly into a tree, or if available on to a fence, usually uttering shrill notes, but when flying slowly with laboured flight, it has quite a different note, which is of a much more pleasing sound. I have often noticed that ornithological writers mention this species as one of the *three* (including the White-winged Chough and Apostle Bird) Australian birds that builds a mud nest; why the Swallow and the Fairy Martin are omitted from this peculiar habit I have never been able to understand. The nest is bowl-shaped, formed of wet mud with just sufficient dry grass to hold it together, lined sparingly with dry grass stems and a few feathers, and is generally placed on a horizontal branch of a living tree. The clutch is usually four, sometimes five, and I have examined nests containing eggs from the first week in October till the end of the year."

Mr. Sandland wrote me: "It is rare and never nests at Balah, South Australia, but is very common on the Murray River and the Burra districts."

Captain S. A. White has written: "One of the greatest favourites amongst Australian birds, its dainty form and coloration drawing to it much attention, the *Grallina* is very widely distributed, and its familiar call of 'Knee-deep, knee-deep,' or 'Pee-wit, pee-wit' may be heard from the coast right

MAGPIE-LARK.

through central Australia. I did not meet with it in the Far North-west owing to the dryness of the country, but all along the larger rivers which have large water holes, many months after they have ceased running, these charming birds are to be found, and their strange cup-shaped mud nests are to be seen on the gum boughs. The Magpie-Lark is a very useful bird, destroying great quantities of noxious insect life. They often renovate the previous season's nest and lay in it; the eggs vary much in coloration and number from three to four to the clutch. The nest is invariably placed on a horizontal limb over water. The young take on their pied plumage in the nest. In the autumn these birds congregate in large flocks up to a hundred and are to be seen moving from one locality to another. Their flight is soft but erratic."

Mr. E. Ashby's notes read: "Common in South Australia, Victoria and New South Wales wherever there is swampy country or dampish open forest. Their circular mud nests are often placed in boughs of lofty gums overhanging water holes or dams. While the places chosen are very exposed the boughs selected are usually inaccessible. The bird has a peculiar bobbing forward motion when walking about searching for food. It does not hop nor run, but walk. It feeds on the ground in damp meadows like Starlings."

Mr. J. W. Mellor notes: "I have seen this bird in all the States I have yet visited except Tasmania. It is to be found along the rivers and about the lakes and lagoons and swampy localities, but does not frequent the dry interior as its food consists of various insects, grubs, worms, etc., generally of an aquatic nature. The bird can often be seen wading about in several inches of water or running along the muddy water's edge in search of its food, ever and anon probing its bill into the soft mud for some tit-bit."

Mr. E. J. Christian has sent me: "This extremely graceful 'wader' is found practically in every State excepting Tasmania. He is one of our most invaluable birds and is rightly protected the whole year through. He is the bushman's friend, especially in the drier parts of the interior, for the traveller knows that if he sees one of these birds water is not far off. I believe that the aborigines hold also this bird in great respect on the same account. Wherever water is lying about there will you see this pretty little black and white bird with its long legs. In flight it is very ungainly and heavy looking. Its chief value to the sheep owner is that in our marshier districts such as the 'Western District' it preys on water molluscs which harbour 'fluke.' On the plains in the south there is a lot of more or less swampy ground and if it were not for this useful bird sheep breeders would have a very bad time of it. On these northern plains 'fluke' is very rare, but still this bird patrols every pool and clears away the molluscs. Every watercourse as long as it has timber has its pair of 'Peewits' as they are commonly called. It is a very

THE BIRDS OF AUSTRALIA.

pretty sight to watch a pair of these birds wading in a shallow pool or walking round the damp grassy edge, now and again crying plaintively 'Pee-wit, Pee-wit, Pee-wit.' Other times if disturbed it calls 'Pree, Pree, Pree,' this call is often a very shrill one. They also eat many worms and gnats and after a rain can often be seen walking about eating worms which have come out. They are fairly tame, and when land is being ploughed up they will follow and eat up the worms as they are turned up. One can get fairly close to them, but I noticed when it was terribly dry that they left the timber and resorted to the open plain and then one could not get near them at all, even in the timber, they were so very shy. This seemed strange as in this country when a drought is on the native birds make up readily to man and will come even into his house for water and to escape the heat. When the rain comes, however, the *Grallina* became quite tame again. There is a huge red Eucalyptus not far from here in a paddock through which the creek flows which contains many nests. I could count at least fifty."

Mr. Tom Carter has sent me a good account: "North-west Aboriginal name Chillin-berin. The Magpie-Lark is commonly distributed through the North-west and Mid-west of West Australia where the combination of fresh water and mud occur together. No birds were observed on the North-west Cape peninsula, because the only two permanent pools there, Yardie and Quailing (the latter on the Exmouth Gulf) are in rocky ground. There were always several pairs on the Cardabia Creek (60 miles S.E. of Point Cloates) when there was water there. They were numerous all along the main river beds in that district, viz., the Lyndon, Minilya, Gascoyne and Lyons, the last being a large tributary of the Gascoyne. The nests, as a rule, are built in the prevailing white gum trees that fringe all the water courses. They are usually at a good elevation, and mostly, but *not* always, on horizontal limbs, and so, owing to the very treacherous brittle texture of that timber, are difficult and dangerous to approach. Green, *i.e.*, growing limbs, are chosen more often than dead limbs as nesting sites, and the nests, though frequently built so as to be projecting clear of foliage above them, seem to be as frequently built in the body of the tree with plenty of leaves above. The nests are made of mud, shaped like a somewhat deep bowl, and have linings of feathers, usually mingled with some grass. Clutch three to five, the latter number being often seen. Main breeding months August and September, but the birds also breed after summer rains, several nests with eggs being found on February 5, 1902, after rain. The birds have a peculiar ringing metallic sort of double note, repeated twice. The aboriginal name is probably meant to be an imitation of it. When the young are fledged, they accompany the parents a long time.

MAGPIE-LARK.

“The South-western birds occur generally through that part of the colony, but were rarely seen immediately round Albany, where there is no river within seven miles, but plenty of swamps. Although I had previously visited and stayed at Albany on many occasions, these birds were first noted by me there on March 24, 1910, about which date a few of them were feeding along the edge of the harbour (*sea water*) on the beach, and also in some of the streets of the town itself. Their appearance must have been unusual, because several residents called my attention to them and asked what they were. About Broome Hill these birds were more plentiful than in any other district of my knowledge. In the summer months they could be seen in parties up to thirty in number, often feeding in the township's streets, and going to roost in company, high up in some tree on the outskirts of the little village. There were always three or four nests within sight of my house, ‘Wensleydale,’ near there, the mud being obtained from the edges of a neighbouring stock tank. They were usually built high up in the trees, 30 to 60 feet, and frequently in such luxuriant green foliage (white gum trees mostly) that it was not easy to see the nest from the ground below it. An *old* nest was *often used* in a following year. The breeding season began in August, and continued until the end of December, as a *second* brood was often reared in the *same* season in the nest from which a first brood had fledged. Thus I noted in a nest in full view from my house: Aug. 18, 1911. Bird sitting on eggs, nest 60 feet in top of white gum. This brood of young left the nest on Sept. 18. Later on a bird was observed sitting again on the same nest and the second brood left it on Dec. 12. The clutch of eggs is usually four, often five. Oct. 11, 1906. Young birds heard in nest. Oct. 13, 1906. Four fresh eggs in another nest. Sept. 28, 1907. Four eggs. Oct. 10, 1908. Fledged young and Oct. 18, 1908. Old birds feeding young in nest, high up in white gum. Nov. 17, 1908. The same young still being fed in nest. Nov. 5, 1910. Fledged young seen. Dec. 19, 1911. Brood of young seen leaving nest. The Goshawk is very fond of killing this useful bird.”

Mr. J. P. Rogers wrote me from the North-west: “Are evenly distributed over the district wherever water is found and are fairly numerous. At Marngle Creek very few were seen near my camp which was 14 miles from the *permanent* surface water. The surface water I camped at usually dries up every year. These birds seem to prefer waterholes, swamps and billabongs to the Fitzroy River itself.”

Batey wrote: “Continues to breed at Redstone Hill. I find it distributed over a large area of Victoria. As an insectivorous bird, to me, it seems to be unrivalled. It should be rigorously protected. Under no circumstances have I known it to attack fruit.”

THE BIRDS OF AUSTRALIA.

Ford has recorded: "The Magpie-Lark takes spells at sitting on eggs at twenty to thirty minute intervals. When a bird has had its spell it flies up and stands beside nest; other gets off and flies away, and former takes its place. This is done all day."

Gubanyi observes on the Riverina, New South Wales: "Seen all over the country at all seasons; but during autumn the farmyard and the garden are its favourite hunting grounds. It feeds chiefly on insects, but occasionally picks up seeds and grains. The poisoned wheat laid out in the garden for the destruction of Sparrows frequently brings about the death of this useful and graceful bird."

Le Souëf and Macpherson, writing about the birds of Sydney, whence all the earlier specimens were described one hundred and twenty years ago, and hence their notes have a special interest to-day, stated "The Magpie-Lark is numerous throughout the city and suburbs, and will often be seen in small flocks walking over lawns and open spaces, searching for food among the grass. They like to roost in special places, and fairly large flocks wend their way homeward in the evening, making for the more outlying wooded areas. The Victorian aborigines called this bird 'Gean-Gean.'"

H. L. White has recorded McLennan's notes from Arnhem Land, "Pera Head. Seen about the swamp. Mornington Island. Fairly numerous about mission station. Cape Barrow. A few seen. Goyder River. A few birds seen. Glyde River. A few birds seen. Liverpool River. A few birds seen. King River. Often met with until the first week in November, then they all disappeared. Roper River. Fairly numerous. Marie Island. A few birds seen. Stomach, remains of beetles and grasshoppers."

Macgillivray has written: "Common throughout the Gulf Country, but only occasional at Cape York. . . Mr. McLennan saw big flocks of Magpie-Larks on the burnt country on the Archer River in June, 1914" while Vidgen includes it as a regular migrant at Cape York.

Milligan wrote of the Stirling Range bird "A few birds were observed in the 'jam' country and Toll's Creek. They were not plentiful in any part of Western Australia that I have visited. They have a call not familiar to me. The 'pee-wit' call of the Victorian and Queensland bird is not used frequently."

A. S. Le Souëf has recorded: "In countries where ticks are endemic certain birds have specialised in feeding on them, notably the Ox-bird (*Textor*), Cattle-pecker (*Buphaga*) and the Cattle-Heron (*Bubulcus*). These birds play an important part in keeping the wild animals in Africa and India free from ticks. Although there are native ticks in Australia, they are chiefly found on nocturnal animals and reptiles, and no birds could feed on them, and so it is most interesting to note that since the introduction of the cattle-tick into

MAGPIE-LARK.

Australia two species, in the *Grallina* (Magpie-Lark) and the Ibis, have found them out and developed the habit of feeding upon them. The *Grallina* in North-west Australia is now known as 'the stock inspector,' for dozens of them will congregate round the watering places of the stock, and as the cattle come in to drink they will carefully examine each beast for ticks, an office which the cattle seem to appreciate. The Ibises, on the other hand, congregate on the camping places of the cattle, and pick up any ticks that have fallen off the animals, and it is stated that the ticks form the principal food of these birds in the district."

This adaptation of habits so quickly in the *Grallina* is very interesting, as it seems to confirm my deduction that this peculiar form has developed from an ancestral relative of the *Piezorhynchus* series of Fly-catchers, and has specialised in such a manner as to obscure its descent. Its rapid recognition of the food value and habits of the cattle-tick is a remarkable instance of versatility; and its peculiar nest building capabilities are also extraordinary, so that a complete study of this bird would add a valuable chapter to the records of Australian ornithology.

I have already referred to the complex scientific history which I will now detail.

Upon the examination of the Lambert drawings, Latham described: "Blue and White Cr(ow). This species is smaller than a magpie; bill and legs dusky brown; irides brown; from the middle of the crown, the nape, back of the neck to the middle of the back, the greater part of the wings, and the end of the tail for one-third, of a deep blue; the rest of the plumage white; quills towards the ends brown. Inhabits *New South Wales*; known by the name of *Karrook*. It seems much allied to the *Thrush* genus, as it has not any bristles covering the base of the bill; it is esteemed a rare species."

To this description the scientific name *Corvus cyanoleucus* was added.

A little later in his work Latham described the "Pied Gr(akle)," giving a complete description and adding: "Inhabits *New South Wales*, with the last species." The "last species" was the Black-headed Grakle, and of this Latham wrote: "I am indebted to General *Davies* for the knowledge of this species, having been brought from *Port Jackson*, by Governor King."

Ten years later Oppel described the bird as a new genus and species, naming it *Tanypus australis*, but unfortunately selected a preoccupied generic name.

A few years later Vieillot, unaware of Oppel's account, found the bird in Paris and again described it as a new genus and species, naming it *Grallina melanoleuca*.

THE BIRDS OF AUSTRALIA.

Vigors and Horsfield only had one imperfect specimen for examination and they recognised it as Vieillot's genus and species.

Gould in his folio work, following G. R. Gray, admitted Oppel's description and also the invalidity of Oppel's generic name and therefore called the bird by Vieillot's generic name and Oppel's specific name, viz., *Grallina australis*.

Almost immediately afterward, G. R. Gray examined the Lambert drawings and at once identified the one upon which *Corvus cyanoleucus* was based as being of this bird, and proposed the correct usage of *Grallina cyanoleuca* as the best name. With the strange perversity of the scientific mind still so obvious in ornithology at the present time, Strickland was not content to let well alone but determined the species also as *Gracula picata* and then wrote: "As this bird was very accurately described by Latham in his second 'Supplement' under the name of *Gracula picata*; and as the name *picata* is more correctly descriptive than *cyanoleuca*, which he had previously applied to it, I should prefer making the permanent designation of the bird *Grallina picata*, rather than *G. cyanoleuca*." It will be noted that Strickland acted here absolutely contrary to his own recommendations. Gould was influenced by Strickland's conclusions and used the incorrect name, which usage was perpetuated, through ignorance, by Sharpe in the *Catalogue of Birds in the British Museum* and persisted until I rectified it. I have stated that Sharpe through ignorance used the name and I now give proof.

When Sharpe reported upon the "Watling" drawings he really only used his own work for reference, practically never referring to Gould where so many of the points had been recorded from the Gray and Strickland examination of the Lambert drawings. Thus he wrote:

"No. 61. Blue-and-white Crow. Lath. Gen. Syn. Suppl. II., p. 117.

Corvus cyanoleucus Lath. Ind. Orn. Suppl., p. xxv.

Grallina picata (Lath.). Sharpe, Cat. B. III., p. 272 (1877)."

Latham does not seem to have recognised these drawings as representing his "Pied Grakle" (Gen. Syn. Suppl. II., p. 130), since he gave a new name. The synonymy in the *Catalogue of Birds* is not complete, as I have omitted these references of Latham's.

Watling's note is: "One half the natural size. Native name *Mur-re-gan*."

No. 62. Blue-and-white Crow Lath.

Watling gives the following note: "Natural size. April. Native name *Karrook*, a rare bird."

The latter agrees with Latham's account best, but Sharpe did not notice that, nor did he observe the priority of *Corvus cyanoleucus* over *Gracula picata*, or he would immediately have proposed the alteration as he did in the other instances he noted.

MAGPIE-LARK.

When I prepared my "Reference List" in 1912 I separated only one subspecies; previously none had been distinguished: as

Grallina cyanoleuca neglecta.

"Differs from *G. c. cyanoleuca* in its smaller size: wing 160-164 mm., typical 180-184 mm.: Parry's Creek, North-west Australia."
and this was maintained in the 1913 "List."

Owing to lack of distinctive colours that show gradation of shade there has been little splitting, but probably good series would show many subspecies.

Milligan has already pointed that the South-western form has lost its voice.

FAMILY—CRATICIDÆ.

THIS family comprises the Australian forms of *Cracticus* (*sensu lato*) *Gymnorhina* and *Strepera* (*sensu lato*). Associated together by Gould they were divorced by Sharpe and from a study of their myology reunited by Leach. I had independently concluded from a study of the superficial characters that such a conclusion seemed valid, but as there is so much controversy about such matters Leach's research has proved very valuable as it will carry more weight than my own more complicated investigations. I may, however, here remark upon the suggested development of the forms.

All have superficially a peculiarity of bill formation, namely the ossification of the membranous operculum, seen in allied birds, into a linear slit. This feature alone separates *Strepera* from the Corvidæ and allies it to *Gymnorhina* and *Cracticus*. However, I have examined nestling *Cracticus* and they show the normal nasal groove with the oval nostril anteriorly placed and the horny operculum present with nasal bristles projecting and half obscuring the nostrils; the bill has the culmen almost straight, semi-keeled and the tip only slightly hooked; the tarsus shows anterior scutation. In the adult *Cracticus* the horny operculum has become ossified, the nostrils have become reduced to linear slits, the nasal bristles have become obsolete, the nostrils quite clear of the base of the bill, the culmen flattened and the tip very strongly hooked; the tarsus faintly scutellate or booted. In *Gymnorhina* the birds have become bigger and the extraordinary development of the bill has not taken place, only a slight curved tip being present. In *Strepera* the same bill as in *Gymnorhina* is seen with the culmen more arched and the semi-keeling more noticeable. In *Neostrepera* the bill has the semi-keeling more pronounced and no curved tip has been developed, only a dagger point evolution being seen instead, though otherwise the structure is similar.

The immature of *Neostrepera* shows a slight hooked tip, showing that the genus has lost the hook through different habits. Moreover, in *Cracticus* the base of the bill is comparatively normal, but in *Gymnorhina* the base is a little differentiated from the frontal feathering and the feathering approaches the nasal impression; this feature is emphasized in *Strepera* so that almost a frontal shield is developed, and this is flattened and well separated from the frontal feathers, though anteriorly the culmen is almost keeled; in *Neostrepera* these feathers are more marked still.

In colouring similar stages can be noted: *Cracticus* has evolved a black and white coloration, and in one direction a wholly black Craticoid form, *Melloria*, has been produced; the *Bulestes* group of the Craticoid series have

CRACTICIDÆ.

not yet reached the black and white stage but have stopped at a black and grey one, and the immature is still commonly seen in its speckled grey coloration, no black having yet appeared. *Gymnorhina* shows the same black and white as *Cracticus*, and a more recent stage still is seen in a white-backed species, this being entirely opposite to the wholly black Cracticoid development. *Gymnorhina* still shows in its plumage changes the stages it has passed through in the evolution of the white-backed form, a series which has provided study for local Australian ornithologists with good results. In *Strepera* we see almost a wholly dark coloration, relieved by a little white and the acquisition of increased size also. In *Neostrepera* a wholly grey plumage tending to black is still preserved, suggesting the retention of an earlier state of plumage.

The geographical distribution of these groups agrees very exactly with these stages: thus *Neostrepera*, which seems the most specialised development from the ancestral form in one direction lives in Southern Australia, ranging from South Queensland to Western Australia with a Tasmanian well defined representative. *Strepera* shows a more restricted distribution, not extending to West Australia, but reaching Kangaroo Island, South Australia, and having a very distinct representative in Tasmania. These I suggest to be the earliest colonists from the North of a pre-Cracticoid ancestor which was developing in the North into the black and white pre-*Cracticus*-*Gymnorhina* style. The newer development then ranged southwards and developed into the *Gymnorhina* group, which is restricted to Australia, but seems to have extended its range to the North comparatively recently. It has a Tasmanian form which shows a very peculiar state in that it is smaller than the Mainland one and, moreover, shows the latest coloration. In this connection we must note the *Bulestes* series, the typical Australian "Cracticoid," which also ranges into Tasmania but also shows a decrease in size in that island and the latest colour-scheme when fully adult, but it seems to be slow in achieving this coloration. Then the restricted black and white *Cracticus* now ranges through Australia in a distinct species but does not appear in Tasmania; and to show these stages almost completely, the real black and white *Cracticus* of extra-limital range just crosses the Torres Straits and occurs in the extreme northern limit of Australia. At the same time the wholly black Cracticoid bird, *Melloria*, which is typically extra-limital appears in northern Australia in Arnhem Land and North Queensland. Thus four stages of invasion are suggested: the earliest developing in the south into *Neostrepera* and *Strepera*; the next developing into *Gymnorhina*, perhaps accompanied by *Bulestes*; then the true *Cracticus* invasion which evolved *C. nigrogularis*, and then the most recent one when *Melloria* settled in the north. The case of *Bulestes* (?) *mentalis* Salvadori is complex and may indicate a more recent invasion still.

GENUS—GYMNORHINA.

GYMNORHINA Gray, List Genera Birds, 1st ed.,
p. 37 (before Apl.), 1840. Type (by original
designation) *Coracias tibicen* Latham.

Also spelt—

Gymnorrhina Reichenbach, Av. Syst. Nat., 1850; Gray, Cat. Gen. Subgen. Birds, p. 62, 1855.

LARGE Cracticine birds with long straight bills, long wings, long tail and long strong legs and feet.

The bill is long and stout, longer than the head, the culmen flattened and rounded, tip not very sharp, scarcely projecting, posteriorly slightly notched, the lateral edges straight, depth of bill at the base about equal to the width, basal feathering projecting on each side towards the nostrils which appear as linear apertures without a groove but in impressed space and quite open; no particular nasal bristles but four strong rictal bristles; the under mandible is stout, nearly as deep as the upper; the interramal space is less than half the length of the mandible and fully feathered.

The wing has the first primary short, about half the length of the second and equal to the tenth primary and the secondaries; the second primary is equal to the sixth, the third, fourth and fifth subequal, the third generally the longest.

The tail is long and square, composed of twelve feathers.

The legs are long and stout, the tarsus scutellate, the front having ten regular scutes, posteriorly bilaminate; the feet are stout, the claws sharp and curved; the inner and outer toes are subequal, the middle toe longest; the hind-toe longer and stouter than the inner toe, and hind-toe and claw longer than the middle toe and claw as the hind-claw is much longer.

Key to the Species.

Back all white	..	..	..	..	..	..	<i>G. hypoleuca.</i>
Back with black saddle	..	..	..	..	..	..	<i>G. tibicen.</i>
(Back mottled black and white ♀	..	..	..	..	..	..	<i>G. dorsalis.</i>)



H. Grönvold del

Witherby & Co

GYMNORHINA TIBICEN.
(BLACK-BACKED MAGPIE).

GYMNORHINA LEUCONOTA.
(WHITE-BACKED MAGPIE).

GYMNORHINA TIBICEN.

BLACK-BACKED MAGPIE.

(PLATE 483.)

CORACIAS TIBICEN Latham, Index Ornith. Suppl., p. xxvii. (after May), 1801 : New South Wales (based on Watling drawing No. 66).

Coracias tibicen Latham, Index Ornith. Suppl., p. xxvii., 1801.

Piping-Roller Latham, Gen. Synops. Birds, Suppl. II., p. 122, 1801.

Barita tibicen Temminck, Manuel d'Ornith., 2nd ed., Vol. I., p. li., 1820.

Cracticus tibicen Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 260, 1827 ; Gould, Synops. Birds Austr., pt. 1, pl. (4), 1837.

Gymnorhina tibicen Gray, List Genera Birds, 1st ed., p. 37, 1840 ; Gould, Birds Austr., pt. xvii. (Vol. II., pl. 46), Dec. 1st, 1844 ; *id.*, Handb. Birds Austr., Vol. I., p. 175, 1865 ; Ramsey, Ibis, 1865, p. 300 (N.S.W.) ; Ramsey, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 91, 1883 ; Ramsey, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 31, 1899 ; *id.*, Proc. Roy. Soc. Vict., Vol. XIV., 1901, p. 1 ; *id.*, Emu, Vol. I., p. 30, 1901 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 290, 1901 ; A. G. Campbell, Emu, Vol. II., p. 13, 1902 (Vic.) ; Cochrane, *ib.*, Vol. III., p. 48, 1903 (N.Q.) ; Degen, *ib.*, Vol. III., p. 131, 1903 ; Berney, Emu, Vol. V., p. 74, 1905 (N.Q.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 1, 1906 ; Austin, Emu, Vol. VII., p. 30, 1907 (N.S.W.) ; Batey, *ib.*, p. 81, 1907 (Vic.) ; Mathews, Handl. Birds Austral., p. 83, 1908 ; Cleland, Emu, Vol. IX., p. 222, 1910 (Food) ; Howe, *ib.*, p. 232 (Vic.) ; Macgillivray, *ib.*, Vol. X., p. 100, 1910 (N.S.W.) ; Gubanyi, *ib.*, p. 120 (N.S.W.) ; Broadbent, *ib.*, p. 235 (N.Q.) ; Cleland, *ib.*, Vol. XI., p. 87, 1911 (Food) ; Stone, *ib.*, Vol. XII., p. 115, 1912 (Vic.) ; Hull, *ib.*, Vol. XIII., p. 15, pl. v. (eggs), 1913 ; Chandler, *ib.*, Vol. XIII., p. 42, 1913 (Vic.) ; Bancroft, *ib.*, p. 55 ; Macgillivray, *ib.*, p. 174, 1914 (N.Q.) ; Barnard, *ib.*, Vol. XIV., p. 47, 1914 (N.T.) ; Cheney, *ib.*, p. 213, 1915 (Vic.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 38, 1917 (N.Q.) ; S. A. White, *ib.*, Vol. XVIII., p. 23, 1918 (S.A.) ; Cleland, *ib.*, p. 283, 1919 (N.S.W.) ; Cole, *ib.*, Vol. XXI., p. 51, 1921 ; Hall, *ib.*, p. 160, 1922.

Gymnorhina longirostris Milligan, Emu, Vol. III., p. 96, pl. v., Oct. 1st, 1903 : Ashburton River, North-west (*i.e.* Mid-west) Australia ; Degen, *ib.*, p. 201, 1904 ; Le Souëf, Emu, Vol. VIII., p. 62, 1908 (N.W.A.) ; Mathews, Handl. Birds Austral., p. 83,

THE BIRDS OF AUSTRALIA.

- 1908; Campbell, Emu, Vol. VIII., p. 143, 1909 (W.A.); Whitlock, *ib.*, p. 181 (W.A.); Campbell, *ib.*, Vol. XVIII., p. 3, 1918 (N.T.).
- Gymnorhina albicruralis* Degen, Emu, Vol. III., p. 207, April 2nd, 1904: alternative name for *G. longirostris* Milligan.
- Gymnorhina tibicen longirostris* Hartert, Nov. Zool., Vol. XII., p. 230, Feb. 11th, 1905: Nullagine, Mid-west Australia; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 2, 1906: Hall, Key Birds Austr., 2nd ed., p. 112, 1906; Mathews, List Birds Austr., p. 241, 1913.
- Cracticus tibicen tibicen* Mathews, Nov. Zool., Vol. XVIII., p. 372, 1912.
- Cracticus tibicen terraereginae* Mathews, *ib.*, Jan. 31st, 1912: Bartle Frere, Queensland; *id.*, Austral. Av. Rec., Vol. 2, p. 60, 1912.
- Cracticus tibicen intermissus* Mathews, *ib.*, (Bendigo) Victoria; *id.*, Austral Av. Rec., Vol. II., p. 60, 1912.
- Cracticus tibicen longirostris* Mathews, *ib.*
- Gymnorhina tibicen tibicen* Mathews, List Birds Austr., p. 241, 1913.
- Gymnorhina tibicen terraereginae* Mathews, *ib.*
- Gymnorhina tibicen intermissa* Mathews, List Birds Austr., p. 241, 1913.
- Gymnorhina tibicen longirostris* Mathews, *ib.*
- Gymnorhina terraereginae* Barnard, Emu, Vol. XIII., p. 206, 1914.
- Gymnorhina tibicen finki* Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 100, Sept. 24th, 1914: Horseshoe Bend, Fink River, Northern Territory.
- Gymnorhina tibicen eylandtensis* H. L. White, Emu, Vol. XXI., p. 163, Jan. 14th, 1922: Groote Eylandt, Northern Territory; Campbell, *ib.*, p. 194.

DISTRIBUTION. Australia. Not Tasmania.

Adult male. General colour both on the upper and under-parts black with a steel-like sheen; rictal-bristles black and directed downwards; the feathers on the chin are black with hair-like tips; hind-neck, sides of neck, sides of body, and upper mantle white; lower-back, upper tail-coverts, and greater portion of tail white with dark shafts to the last, remainder of tail black; upper wing-coverts and outer edge of wing white; primary-coverts black varied with white, the white increasing in extent on the inner ones; vent, upper thighs, under tail-coverts, axillaries, and lesser under wing-coverts white, greater series of under wing-coverts blackish; under-surface of quills glossy black; lower aspect of tail similar to its upper-surface. Bill slate with blue-black tip, legs black, eyes brown. Total length 360 mm.; culmen 56, wing 240, tail 126, tarsus 52. Figured. Collected at Bartle Frere, North Queensland, on the 26th of May, 1900, and is the type of *Cracticus tibicen terraereginae*.

Adult female. Very similar to the adult male, but the upper-parts grey instead of white.

Immature male. Crown of head and sides of face glossy black; a nuchal band of white, which extends on to the sides of the neck; mantle and lower-back grey with dark shaft-lines to the feathers; mantle and scapulars black or blackish-brown fringed with white, grey or bronze-brown; upper wing-coverts and edge of wing white with blackish tips to some of the median and greater series; bastard-wing and outer primary-coverts blackish, the inner ones of the latter white with more or less black at the tips; flight-quills blackish, paler on the margins of the outer and inner webs; rump and upper tail-coverts white like the vent and under tail-coverts;

BLACK-BACKED MAGPIE.

tail white at the base, with black shafts, and black on the terminal portion and the outer-web of the outermost feather on each side; a slightly indicated superciliary streak of pale smoke-brown; rictal-bristles black; lores blackish with hair-like tips to the feathers; chin dusky grey, also with black hair-like tips to the feathers; throat, lower cheeks, and fore-neck ochreous-bronze with dark bases to the feathers; breast, abdomen and sides of the body pale slate-grey with blackish centres and dark bases to the feathers; thighs blackish-brown; under wing-coverts white; axillaries and greater under wing-coverts blackish; under-surface of flight-quills dark brown with glossy reflections; lower aspect of tail similar to its upper-surface but much paler on the terminal portion. Eyes brown, feet blue-black, bill lead-grey, tip dark. Collected at Normanton, Gulf of Carpentaria, North Queensland, on the 4th of April, 1914.

Immature female. Crown of head and nape blackish-brown with dark smoke-brown margins to the feathers, sides of crown dusky-grey; fore-part of cheeks and ear-coverts blackish; sides of neck and a band across the hind-neck cream-white, becoming grey with blackish centres to the feathers of the lower hind-neck and upper mantle; mantle and scapulars blackish-brown with bronze or slate-grey margins to the feathers; back ash-grey with dark shaft-streaks and whitish tips to the feathers; edge of wing and upper wing-coverts white, some of the lesser coverts blackish-brown at the base and some of the greater series blackish on the terminal portion; bastard-wing and primary-coverts also blackish with more or less white on the basal portion and extends towards the tips on the outer webs; flight-quills blackish, paler and inclining to smoke-brown on the inner margins; rump, upper tail-coverts, and base of tail white like the vent and under tail-coverts; terminal portion of tail and outer web of the outermost feather on each side blackish; supraloral streak, which extends over the eye, isabelline; the feathers in front and below the eye blackish with hair-like tips; rictal-bristles black; chin dusky grey with black hair-like tips to the feathers; throat, lower cheeks, fore-neck, and upper breast bronze-brown with black centres to the feathers on the last; lower breast and abdomen slate-grey with dark shaft-lines to the feathers, becoming uniform grey on the sides of the body; axillaries pale brown; thighs coffee-brown; under wing-coverts white; under-surface of flight-quills brown with glossy reflections; lower aspect of tail similar to its upper-surface.

Nest. Large bowl-shaped structure, composed of sticks and twigs; lined with rootlets, grass, bark, feathers, wool, etc. 12 to 14 inches by 6 to 8 deep; inside 6 or 7 inches by $3\frac{1}{2}$ deep.

Eggs. Vary from two to five for a setting, but as a rule three to four eggs constitute the full clutch. They are subject to considerable variation in the ground-colour, as well as the general markings, and, as regards shape and size, they have a very extensive range. They vary more than any other eggs laid by Australian birds. One of the most common forms met with has a pale bluish ground-colour, beautifully marbled, nearly all over, with streaks, hair-like lines, and smudges of pinkish or brownish-red, and dull slate markings. Swollen ovals in shape. Surface of shell fairly smooth and slightly glossy. This clutch measures 42-43 mm. by 29. In another form frequently met with the ground-colour is of a pale greenish tinge, well marked all over with smudges, hair-like lines, and scribblings of various shapes, of umber and pale slate. The clutch measures 35-39 mm. by 27-29. Another form (No. 3) is of a pale brownish-buff ground-colour, well spotted all over, particularly at the larger end, with markings of umber, reddish-brown, purplish-grey, and slate. The eggs of this clutch are very lengthened specimens, and much pointed at the smaller end. They measure 45-46 mm. by 29. Form No. 4 are very large and beautiful eggs, with a ground-colour of pale greyish-blue, boldly and very remarkably blotched

THE BIRDS OF AUSTRALIA.

with rounded markings of deep purple-brown and black, with a dull purplish tinge around the edge of many. They are chiefly confined to the larger end of each egg, where they form an irregular cap. In shape they are rather long ovals, very pointed at the smaller end. Surface of shell rather granulate; but nevertheless glossy. The clutch measures 44 mm. by 29-30. Form No. 5 possesses a ground-colour of a rich reddish-brown, well spotted and blotched, particularly about the larger end, with light to rich reddish-brown, slate, and purplish-grey. The eggs are rather oval in form, surface of shell glossy. The clutch measures 40-41 mm. by 29. Form No. 6 has a greyish ground-colour (a great contrast to Form No. 5) possessing a few hair-like markings, and small spots of pale umber, the four eggs being almost entirely without markings. In shape the eggs are swollen ovals. Surface of shell rather rough, and with very little gloss. The clutch measures 38-40 mm. by 30. Form No. 7 are very remarkable long narrow eggs, quite a contrast to Form No. 6. Ground-colour of a pale green, well marked with smudges, smears, and streaks of umber. Surface of shell fairly smooth, and slightly glossy. In shape the four eggs are very elongate or lengthened ovals. The clutch measures 44-45 mm. by 26-27. Form No. 8 are a very handsome and uncommon variety. Ground-colour of a pale apple-green, heavily spotted and blotched with rich reddish-brown, umber, purplish-grey, and slate. Eggs rather swollen ovals in shape, surface of shell somewhat granulate and slightly glossy. The clutch measures 40 mm. by 28. Form No. 9. Ground-colour grey, with a very pale tinge of yellow, boldly blotched with very dark olive-brown, blackish-brown, and slaty markings. Surface of shell rather granulate, and slightly glossy. The clutch measures 40-41 mm. by 28. Form No. 10. Ground colour very pale green, well-marked with spots, smears, and streaks of umber and slate. Eggs swollen ovals, rather pointed at the smaller end. Shell fairly smooth and slightly glossy. The clutch measures 40 mm. by 29. Form No. 11. Ground-colour pale greenish-grey, spotted with umber, and dull slate markings. Surface of shell smoothly granular, and very glossy. In general appearance this clutch very closely resembles (only, of course, much larger in size) some forms met with of the eggs of the Black-faced Cuckoo-Shrike (*Coracina novæhollandiæ*). The clutch of five eggs measures 42 mm. by 29. Form No. 12. Ground-colour pale pinkish-white, well covered with small specks, hair-lines, and very great blotches and smears of rich brownish-red, and giving the eggs a very striking appearance. A very wonderful contrast when placed beside the eggs of the other forms here recorded. Surface of shell fairly smooth and rather glossy. Under the lens will be noticed, as is the case with all the eggs of this species, numerous minute pin-point pittings. The clutch measures 43 mm. by 29.

Nest, which is a large dish-shaped structure, is subject to variation in size according to its situation and locality. Outwardly constructed of dead sticks, bark, roots, and twigs; inside of which is a neat and thick lining of strips of bark and grass, and finally feathers, fur, and hair; frequently quite a "pad" of long horse-hair furnishes the lining, and is very neatly worked in for the purpose. Sometimes wire is found encircling and entangled in the outside structure of the nest, and instances have been recorded where the outside portion of the nest has been almost entirely constructed of this old wire picked up by the birds. The nest measures across over all from 12 to 18 inches, by about 6 to 9 inches in depth. The egg cavity measures from $5\frac{1}{2}$ to $8\frac{1}{2}$ inches across, and from 3 to 4 inches deep, though sometimes they are smaller. The nests are placed in a variety of situations; usually in upright forks of saplings, and large trees, or in thick clusters of foliage, on horizontal limbs, and often in dead and leafless trees. The position of the nests vary from 10 to 50 feet or more from the ground.

Eggs. In the Queensland bird eggs usually three to four for a setting, more often three; and vary in general colour and markings, and also in shape and size. A rather

BLACK-BACKED MAGPIE.

typical clutch, or one of the commoner forms met with, is quite pyriform in shape, ground-colour very pale greenish-white, well marked with streaks and spots of brownish-red and dull slate, becoming more closely set together at the larger end. Surface of shell slightly granulate, and possessing very little gloss. The clutch measures 34–38 mm. by 25–26. Eggs are smaller than those of *G. tibicen*, found further south. Another clutch of four eggs, very swollen or rounded ovals in shape, possess a ground-colour of a pale bluish-grey, boldly but sparingly spotted with dark purplish-black and black, and give the eggs a very striking appearance. Around the edges of the dark spots a purplish tinge plainly shows in many. Surface of shell fairly smooth and glossy. The clutch measures 34–38 mm. by 27. Another clutch, though much the same colour as the last, is of quite a different shape and size, being long oval, and very much pointed at the smaller end. The clutch measures 38–40 mm. by 25–26.

Nest. The usual large open structure; is constructed of sticks, and neatly lined with grass, roots, and sometimes vines, and placed in the fork of a tree, or in a bunch of small twigs, or Mistletoe (*Loranthus*) growth in a forest tree. This northern species does not use fur or hair in the lining of its nest. Dimensions of nest are: across over all 14 inches, depth over all $5\frac{1}{2}$ inches. Egg cavity across $5\frac{3}{4}$ inches by $3\frac{1}{2}$ inches deep.

Eggs. In the Southern bird a clutch of four eggs has a ground-colour of pale greenish-white, well marked with smears and streaks of light to dark umber and dull slate, the markings being chiefly confined to the larger end of each egg. Surface of shell smoothly granular, and rather glossy. The clutch measures 41 mm. by 29.

Nest. The usual large stick structure, lined with grass and wool, etc.

Eggs. In the Mid-west Australian bird the eggs of this species vary in their general colour and markings, and also in shape and size, but not nearly so greatly as is the case with *G. tibicen*. They vary from three to five for a setting, and four are often found. A clutch of four is long oval in shape, ground-colour pale pinkish-white, very uniformly marked all over with numerous minute specks and small smudges and streaks of brownish-red. Surface of shell rather smooth and slightly glossy. The clutch measures 37 mm. by 24. Another clutch containing five eggs are lengthened ovals in shape. Ground-colour of a pale greyish-white, minutely marked all over with pale brown, upon which are scattered large spots of umber, and dull to dark slate. Surface of shell rather smooth and glossy. The clutch measures 40 mm. by 27. Another clutch containing four eggs, has a pale greenish-white ground-colour, over which are scattered numerous very minute specks of brownish-red, as well as spots of dark brownish-red, black, and pale slate. The clutch measures 38–39 mm. by 24–26.

Nest. The usual large open structure of sticks and twigs, and lined with grasses, rootlets, etc., and placed in a tree at heights varying from 12 to 30 feet or more.

Breeding season. July to February.

CHARACTERISTIC of Australia is the "Magpie," and it is very pleasing to record a clean history, though extraordinarily enough it does not date back far, the first recognition arising from the much discussed "Watling" drawings, when a most beautiful painting was included, upon which was founded Latham's *Coracias tibicen*, a specific name at once utilised and never since challenged.

THE BIRDS OF AUSTRALIA.

When Sharpe examined the "Watling" drawings he wrote:

"No. 66. Piping Roller, Lath. Gen. Syn. Suppl., p. 122.

Coracias tibicen, Lath., Ind. Orn. Suppl., p. xxvii.

Gymnorhina tibicen Gadow, Cat. B. VIII., p. 91.

"This figure is the type of *Gymnorhina tibicen* (Lath.). Watling's note is: 'Natural size. Native name *Iarra-won-nang*. This bird has a soft note not unlike the sound of a well-tuned flute. It is a bird of prey.' Latham, as usual, has published the original note, without acknowledgment, and has twisted it into: 'It preys often on small birds,' which is not what Watling wrote."

Here again the "Watling" and "Lambert" drawings are confused, as the Lambert drawing is the basis of Latham's description, not the Watling one, which is consequently not exactly "the type." Latham's reading of the vernacular name is printed *Tarra-war-nang*.

Vigors and Horsfield printed the first field note after the above: "The birds of this species, 'Mr. Caley informs us,' are gregarious, and found only in particular places. In the morning they make a loud whistling noise high up in the trees. The natives call the species *Ca'ruck*; and they tell me it builds its nest of sticks lined with grass in *Iron-bark* and *Apple-trees* (a species of *Angophora*). It has three young ones. These birds do not appear to be migratory. To the best of my recollection I have never missed them."

It may be noted that the vernacular name given by Caley is one cited by Watling as applied to the Magpie-Lark.

Gould's notes read: "The *Gymnorhina Tibicen* is a bold and showy bird, which greatly enlivens and ornaments the lawns and gardens of the colonists by its presence, and with the slightest protection from molestation becomes so tame and familiar that it approaches close to their dwellings, and perches round them and the stock yards in small families of from six to ten in number. Nor is its morning carol less amusing and attractive than its pied and strongly contrasted plumage is pleasing to the eye. To describe the notes of this bird is beyond the power of my pen, and it is a source of regret to myself that my readers cannot, as I have done, listen to them in their native wilds; . . . It lives almost entirely on insects, which are generally procured on the ground, and the number of locusts and grasshoppers it devours is immense. Cleared lands, open flats, and plains skirted by belts of trees are its favourite localities; hence the interior of the country is more favourable to its habits than the neighbourhood of the coast."

Captain S. A. White has written me: "This bird is to be found on the River Murray and also in the interior. I did not meet with this bird till I got fairly high up on the Finke River, and as the MacDonnell Ranges were

BLACK-BACKED MAGPIE.

approached they became more plentiful. They were certainly far more numerous than the White-backed bird. North-west of Arltunga in the Hart Mountains both species were observed on the same plain within a mile of each other. I met with these birds on the Cooper Creek in 1916; they were much more numerous than the White-backed species, but the two species were not seen together. They were nesting in October."

Mr. J. W. Mellor has written me: "The Black-backed Magpie is common throughout New South Wales and Queensland, where I have met with it in all open country, especially in the localities that are cultivated. It is extremely useful in eating up large grubs and insects that do a great deal of damage to the crops. The call of the Magpie is a pleasant and hearty piping noise, full of melody and long and voluminous. The nesting time is from July to December or according to the rainy season."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "*Gymnorhina tibicen* is never to be found in any of the thick scrubs, but always fairly numerous in open forests, 'ringbarked' country, cultivation paddocks and cleared land; generally met with in pairs or small flocks, but more often a pair of old birds with their last season's young. Few of our birds, if any, are better known, or a more universal favourite. Although very much respected and seldom interfered with, it is rather a shy bird, and will not allow of a close approach, but where a pair or more take up their abode about a dwelling they become less shy, showing less fear of man, but even in these cases they are always very suspicious of anything strange. The flute-like carol of the Magpie, mostly heard in early morn, is one of the most melodious and pleasing sounds that nature provides, but they also have other notes, which are more of a harsh squark, but these are more frequently uttered at the approach of danger, or when alarmed. During times of drought they are very silent, but as soon as a good rain storm has fallen, we hear their sweet carol again. The flight is rapid and very direct, with quick and regular wing-beats, often travelling a mile at a stretch, from one feeding ground to another. If not disturbed they will nest about the same spot year after year, often in the same tree, sometimes becoming very savage, to such an extent that they are perfectly dangerous; upon four occasions I have had to shoot birds for this reason, it was no use to simply rob their nests, it only infuriated them the more. Many a time while riding through my paddocks, I have been attacked by one of these birds, which, driving its bill through my hat, has brought the blood from the crown of my head. I shall never forget my first experience of this kind; as I was cantering along quickly, when suddenly there was a loud crack, and a stinging pain on the side of my head and my hat fell to the ground. I was sure someone had raced up behind me, and struck me with a stock whip, but upon looking round

THE BIRDS OF AUSTRALIA.

as quickly as possible, there was no person in sight, but a fine old Magpie making a hasty retreat to a neighbouring tree. They will never attack while being watched, but as soon as the head is turned and one starts to move away, they will commence their charge; if then the head is turned back to look at them, they swoop up into the air, and return to their perch on a tree. The nest is deep bowl-shaped, roughly formed externally with small sticks and twigs, lined firstly with horse and cow dung finely broken up, then neatly with roots and dry grass stems, fine bark, hair, wool, etc. The clutch is usually three or four, and I have examined nests containing eggs from August 20th till October 20th."

Mr. Ed. J. Christian has written me: "This noble bird is found in South Queensland, North and Central New South Wales, Victoria (north of the 'Divide' only), the adjoining parts of New South Wales, South Australia and Central Australia. The White-backed Magpie is very rarely seen here although a few are seen north of the Divide. I question if the Black-backed Magpie has ever been seen south of the Divide; if so, it was a very rare case. This is peculiar, as the mountains are not high, the highest, I suppose, would be 3,500 feet, yet they seem to form a natural barrier between the northern and southern parts of Victoria. This bird is an extremely valuable bird, altho' at times in the year it is a bit of a nuisance to wheat growers. But for all the wheat it eats, I think it makes up during the other months by eating much vermin. To see a full plumaged cock at close quarters is a sight worth seeing. His black parts are coal black, his white parts are snow white, his cruel dark brown eyes, his bluish-grey beak and legs all match well, and when he throws back his head and rings out his carol he looks splendid. The Thrush's notes are rich and clear, the voice of the Lyre bird is beautiful, and many others which I could mention have beautiful notes, but it is greatly to be questioned if any of them can put the warblings to such power and perfection as this songster. He sings during the day but not to the same extent. During the heat of the day all that can be heard is a thin piping, whence he got his name '*tibicen*.'"

Mr. Ashby says: "While this is the common Piping Crow-Shrike of New South Wales, in the southern parts of Victoria and South Australia *leuconota* only is present, but about 200 miles north of Adelaide both species occur. I have collected the Black-backed at Nackara on the line from Broken Hill to Port Pirie and noted White-backed birds in the same locality. Round Pungonda *tibicen* replaces *leuconota*. It seems fairly evident that in the State of South Australia *tibicen* replaces *leuconota* in the dry interior, in fact, as with so many other birds, its range is largely determined by the rainfall and the altered flora that obtains in such situations"; and about the Western Australian he noted: "This is undoubtedly a very interesting form. In Oct. and Nov., 1920, I had

BLACK-BACKED MAGPIE.

many opportunities of watching these birds. The cock bird with his white back is certainly exceedingly like *leuconota*, but the hen with her marked black back certainly more closely resembles *tibicen*, altho' the placing of the black shows marked differences. Is it not possible that this form may have been specialised from a hybrid?

"This Western bird is much shyer and more difficult to approach than either of the Eastern birds. While the birds were common on the sand plains at Watheroo I had great difficulty in securing a specimen, but ultimately shot an adult female. Certainly they have notes differing markedly from the White-backed birds round Adelaide."

A. G. Campbell writing of the birds of North-eastern Victoria has recorded: "The Black-backed Magpie (*G. tibicen*) is the representative of the genus in the northern part of the colony, and in Rutherglen district it is exceptionally plentiful. The whole year round the birds feed in flocks on the open grassland. This, together with the fact that only two nests were seen in the district during two seasons, leads to the belief that many of them do not nest. One particular flock which came under observation appeared to possess a domain of its own, and any other Magpies which dared to come near were rigorously hunted; but it was amusing to see these same autocrats make off helter-skelter on the appearance of a well-known Harrier, which for many months made an almost daily visit to the paddock. It was always left in undisputed possession for the time being. Concerning the 'black-backs' many interesting phases of plumage are to be seen, some birds having a very narrow black band between the shoulder blades, while others have almost the whole of the back black."

Berney records from the Richmond District, North Queensland: "The Magpie is always here, and pretty numerous; I think this is the earliest of the early birds, for its beautiful notes may be heard with the faintest streaks of dawn. I have a good many notes of nests with eggs or young birds in September."

Chandler has noted regarding the birds of Kow Plains, Victoria: "A common bird. A number of hybrids between *G. tibicen* and *G. leuconota* were seen at different times on the plains."

Macgillivray has written: "Common in the Gulf country (of Queensland). Not noted at Cape York. This Gulf bird is smaller than southern birds, and has been separated by Mr. Mathews under the subspecific name *terra-regine*" (*sic*).

Barnard has added from the Northern Territory: "This bird was plentiful on the Barclay Tableland during our visit in the beginning of 1913, but we did not obtain any eggs. Another bird which I think is slightly different

THE BIRDS OF AUSTRALIA.

from the tableland bird is found on the McArthur. I later got eggs of both forms."

Mr. Tom Carter's notes read: "In your 1912 'List' the White-backed Magpie is given as occurring in Western Australia generally. My experience is that its northern limit may be said to be the Murchison River (about Lat. S. 28°) as far as the *coastal region* is concerned. The general course of the Murchison is from the N.N.E. to the S.S.W. (or roughly, N.E. to S.W.). At the distance of 250 miles from the coast, the main Murchison River is, for some 150 miles, *only fifty miles* distant from the Gascoyne River, and the Gascoyne River is only about seventy miles south of the Ashburton River. Consequently, the head waters of these three large rivers are close together. Probably in times of flood, they actually join, by means of tributaries and flooded plains. In this region of the upper waters of these rivers, *Gymnorhina tibicen longirostris* takes the place of *G. dorsalis*. Mr. Milligan, when describing *longirostris*, does not give the exact locality on the Ashburton River where the type specimens were obtained; but as he also mentions birds, obtained about the same date, on the Cane River, I take it that *G. longirostris* occurs also on the lower reaches of the Ashburton River, because the Cane River is a short one (about 100 miles) and enters the sea about 25 miles north of the Ashburton. Shortridge's notes (*Ibis*, 1909 p. 670) state: 'The Long-billed Magpie was not uncommon on the Gascoyne River.' Apparently Mr. Shortridge's specimens were obtained only at Clifton Downs Station, which is one hundred and twenty miles from the coast up the Gascoyne River. I have never been more than sixty miles up the Gascoyne, and that was many years ago (1888), but no Magpies of any sort were ever observed by me there or on the lower part of the river, which I know well and recently visited again in 1911 and 1913. It is quite possible that *G. longirostris* is extending its area lower down the river, as *G. dorsalis* undoubtedly extends its range, with increasing settlement, further south; but I think Mr. Shortridge's note should have read 'is not uncommon on the *Upper* Gascoyne River.' I would now give a warning to future ornithologists in the above district that in recent years many of the squatters have brought caged birds of *G. dorsalis* from the south-west, and let them loose in the Gascoyne, Minilya River and other districts, so that in future years there will doubtless be hybrids between *G. longirostris* and *G. dorsalis*. When on the Minilya River, in 1913, I saw specimens of the latter species in the bush which Mr. McLeod told me he had set at liberty, and warned me against shooting any of them. Mr. J. Butcher of Boolathanna Station on the Lower Gascoyne did the same thing. *G. longirostris*, many years ago, was much esteemed by inland settlers as a cage bird, but they were difficult to obtain. Quite probably some cage birds have escaped or been set free and so extended the range of this species."

BLACK-BACKED MAGPIE.

Whitlock has written "*G. longirostris* is the Magpie of the Coongan. It was seldom I found it far from the ranges, though it also occurs too on the de Grey. I found one nest containing young, and saw other young birds in captivity in the latter locality. This species and *Cracticus picatus* (*sic*) are the birds to herald daybreak. At the first signs of dawn their rich, flute-like notes may be heard from the summit of some steep hill or other point of vantage in these rugged ranges. Indeed, I have several times heard both species break into song on moonlight nights. It can hardly be called a common bird, but where it occurs it is not likely to be overlooked. It is a significant fact that I did not find a single nest near the main river. All were in the secluded gullies of the ranges, or in stunted gums growing but a short distance from the foot thereof. *G. dorsalis*. I must confess to my not being up-to-date in my knowledge of the distinctions separating the Magpies of the Eastern states from our local birds. For all that, I am well acquainted with the general appearance and habits of the latter. Judge of my surprise when I shot an unmistakable example of the White-backed Magpie. It is perhaps worthy of remark that this specimen was procured on a huge spinifex flat quite clear of the ranges. It was the only one I saw."

Gould was so suspicious of confusing geographical "species" which are now termed "subspecies" that with regard to *G. tibicen* he wrote: "This species is universally diffused over the colony of New South Wales, to which part of the Australian continent I believe it to be confined. It is true that a bird of this genus inhabits the neighbourhood of Swan River, whose size and style of plumage are very similar, but which I have little doubt will prove to be distinct; I shall therefore consider the habitat of the present bird to be restricted to New South Wales until I have further proofs to the contrary." He otherwise modified this by writing: "Specimens of this form (*Gymnorhina* in toto) from Western Australia exhibit some trifling differences, but I have not as yet been able to satisfy myself whether they are or are not distinct."

Half a century elapsed before the differences were defined and then both the Western species represented were considered as distinct species. Campbell named the Western White-backed Magpie and Milligan the Western Black-backed Magpie. The latter is the one I am now writing about, and Milligan's points of distinction read: "(a) The Western bird is longer; (b) its bill is longer, more narrow, less arched, and more triangular shaped; (c) its tail is shorter; (d) its tarsi are shorter; and (e) the thigh feathers are not black, but wholly white for the upper portion, and noticeably so for the lower. In addition, the plumage generally does not present the striking and decided contrasts of glossy bluish-black and snowy white that mark the Eastern forms." The above grounds for separation were distinctly feeble, as Milligan

THE BIRDS OF AUSTRALIA.

used other people's measurements to contrast with his own, a very unwise thing to do. However, the one notable feature was the long bill, which, however, is by no means a constant character, so that the name might be used in a subspecific sense.

Degen at once criticised the characters in diffuse detail, pointing out the very slender grounds upon which Milligan had formed his species and incidentally touched upon the geographical distribution of the forms, and then upon the nomenclature of the two Western birds, unscientifically adding an unnecessary Latin name for Milligan's species.

As an example of the improvement in taxonomic ornithology through excess of splitting this presents a remarkable case. Hartert had just initiated ultra-splitting in subspecific terms into Palæarctic ornithology and wrote an essay introducing it to the notice of Australian workers. He was, however, comparatively unskilled in the absolute necessity of strictly accurate bibliographic work and consequently overlooked much recent work and made many bad blunders. In the present instance he overlooked the *Emu*, a periodical dealing with Australian birds and therefore described

Gymnorhina tibicen longirostris

"Differs from *G. tibicen tibicen* in its larger size and especially in its much longer bill. ♂ ad.; wing 251 to 257; bill 72·5 to 73·5 mm. Type: ♂ ad. Nullagine, N.W. Australia, 16. iv. 1901. *G. tibicen tibicen* was originally described from New South Wales, and the birds from there have the bill about a centimetre shorter. Mr. Tunney sent only two adult males."

The number of errors in this performance are extraordinary. Firstly, he overlooked Milligan's new species in a restricted genus like the present, almost an inexcusable oversight. The birds came almost from the same locality, and he selected the same name as Milligan had chosen. He had only two birds and consequently his facts were liable to reconsideration, and the larger size and much longer bill are not constant.

I examined a much larger series for my "Reference List" in 1912, and under the influence of genus-lumping referred all the forms to *Cracticus*, sinking *Gymnorhina*.

I allowed four subspecies

Cracticus tibicen tibicen (Latham).

New South Wales.

Cracticus tibicen terraereginae Mathews.

"Differs from *C. t. tibicen* in its much smaller size; wing 240 mm.; typical wing 270 mm. Bartle Frere, Queensland."

North Queensland.

Cracticus tibicen intermissus Mathews.

BLACK-BACKED MAGPIE.

"Differs from *C. t. tibicen* in being smaller, but much larger than *C. t. terræreginæ*. (Bendigo), Victoria."

Victoria, South Australia.

Cracticus tibicen longirostris (Milligan).

North-west Australia.

The long bill is comparatively constant, but Hartert's "larger size" should be read "smaller size."

In my 1913 "List" I reverted to the correct genus name *Gymnorhina* and recognised the four subspecies above indicated.

I later added

Gymnorhina tibicen finki.

"Differs from *G. t. intermissa* in having a larger bill and smaller wing. Horseshoe Bend, Fink River, N.T."

Central Australia.

As indicating the trend of the development of splitting it is pleasing to record the recent addition by H. L. White of

Gymnorhina tibicen eylandtensis

from Groote Eylandt, Northern Territory.

"Differs from typical *Gymnorhina tibicen* by longer bill, more slender tarsi, intensely black (glossy black) and purer white parts, narrower band of black at tip of tail (30 as against 60 mm.), by the mottled tibia (instead of wholly black), and by less black on the tips of white feathers of shoulder patches." The measurements show even a smaller bird than my *G. t. terræreginæ*, as the wing is given as ♂ 224, ♀ 220, but as immature male reads 232, the former measurements cannot be relied upon. These are contrasted with Campbell's measurements of ♂ 257, which is not of the typical form, but of the smaller Victorian form.

GYMNORHINA HYPOLEUCA.

WHITE-BACKED MAGPIE.

(PLATE 483.)*

CRACTICUS HYPOLEUCUS Gould, Synops. Birds Austr., pt. I., pl. (IV.), Jan. 1st, 1837: Tasmania.

Cracticus hypoleucus Gould, Synops. Birds Austr., pt. I., pl. (IV.), Jan., 1837; *id.*, Proc. Zool. Soc. (Lond.), 1836, p. 106, June, 1837.

Gymnorhina leuconota Gould, Birds Austr., pt. XVII. (Vol. II., pl. 47), Dec. 1st, 1844: South Australia; *id.*, Handb. Birds Austr., Vol. I., p. 176, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 92, 1883; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 31, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 292, 1901; Hall, Proc. Roy. Soc. Vict., n.s., Vol. XIV., p. 1, 1901; Hill, Emu, Vol. II., p. 162, 1903 (Vic.); D'Ombraïn, *ib.*, Vol. IV., p. 124, 1905 (Albino); A. G. Campbell, *ib.*, Vol. V., p. 142, 1906 (King Island); North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 5, 1906; Hill, Emu, Vol. VI., p. 179, 1907 (Vic.); Batey, *ib.*, Vol. VII., pp. 7-81, 1907 (Vic.); Dove, *ib.*, Vol. VIII., p. 67, 1908; Mathews, Handl. Birds Austral., p. 83, 1908; Hall, Emu, Vol. IX., p. 16, 1909; *id.*, *ib.*, p. 128, 1910 (S.A.); Batey, *ib.*, Vol. X., p. 49, 1910 (Vic.); S. A. White, *ib.*, Vol. XII., p. 4, 1912 (S.A.); *id.*, *ib.*, Vol. XIII., p. 32, 1913 (S.A.); Purnell, *ib.*, Vol. XV., p. 43, 1915 (Vic.).

Gymnorhina organicum Gould, Birds Austr., pt. XXVII. (Vol. II., pl. 48), June 1st, 1847; new name for *Cracticus hypoleucus* Gould; *id.*, Handb. Birds Austr., Vol. I., p. 178, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; *id.*, Tab. List Austr. Birds, p. 4, 1888; Dove, Emu, Vol. XV., p. 193, 1916.

Gymnorhina hypoleuca Cabanis, Mus. Heine, Vol. I., p. 226, 1851.

Gymnorhina hyperleuca Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 93, 1883; Legge, Papers Proc. Roy. Soc. Tasm., p. 239, 1887; Hall, Key Birds Austr., p. 31, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 295, 1901; Fletcher, Emu, Vol. III., p. 50, 1903; McClymont, *ib.*, p. 57; Littler, *ib.*, p. 82; A. G. Campbell, *ib.*, Vol. IV., p. 122, 1905; McClymont, *ib.*, p. 175; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 8, 1906; Mathews, Handl. Birds Austral., p. 83, 1908; McClymont, Emu, Vol. VII., p. 189, 1908.

* The Plate is lettered *G. leuconota*.

WHITE-BACKED MAGPIE.

Gymnorhina dorsalis Campbell, Proc. Roy. Soc. Victoria, Ser. II., Vol. VII., 1894, p. 206, January, 1895: South-west Australia (Swan River); Hall, Key Birds Austr., p. 31, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 296, 1901; Milligan, Emu, Vol. II., p. 73, 1902, Vol. III., pp. 17, 22, 100, 1903; *id.*, *ib.*, pl. x., p. 177-9, 1904; Degen, *ib.*, p. 201; Hill, *ib.*, p. 227; Milligan, *ib.*, Vol. IV., p. 9, 1904; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 2, 1906; Mathews, Handl. Birds Austral., p. 83, 1908; Whitlock, Emu, Vol. VIII., p. 181, 1909; Gibson, *ib.*, Vol. IX., p. 74; Crossman, *ib.*, p. 89; Whitlock, *ib.*, p. 207, 1910; Carter, Emu, Vol. X., p. 296, 1911; H. L. White, *ib.*, Vol. XIII., p. 48, 1913; Orton and Sandland, *ib.*, p. 80; S. A. White, *ib.*, Vol. XX., p. 129, 1921; Ashby, *ib.*, p. 136; Mellor, *ib.*, p. 139; Alexander, *ib.*, p. 166.

Cracticus hypoleucus hypoleucus Mathews, Nov. Zool., Vol. XVIII., p. 373, Jan. 31st, 1912.

Cracticus hypoleucus leuconotus Mathews, *ib.*

Cracticus hypoleucus intermedius Mathews, *ib.*: (Cooma) New South Wales; *id.*, Austral Av. Rec., Vol. 1, p. 60, 1912.

Cracticus hypoleucus dorsalis Mathews, *ib.*

Gymnorhina hypoleuca hypoleuca Mathews, List Birds Austr., p. 241, 1913.

Gymnorhina hypoleuca leuconota Mathews, *ib.*; Belcher, Birds Geelong, p. 302, 1914; S. A. White, Emu, Vol. XVIII., p. 23, 1918 (S.A.).

Gymnorhina hypoleuca intermedia Mathews, List Birds Austr., p. 242, 1913.

Gymnorhina hypoleuca dorsalis Mathews, *ib.*

DISTRIBUTION. Southern Australia and Tasmania, New South Wales, Victoria, South Australia and South-west Australia.

Adult male. Crown of head, nape, sides of face, including the lores, sides of neck, throat, breast, abdomen, sides of body, thighs, and axillaries glossy black; scapulars, flight-quills, apical portion of tail, and the outer web of the outermost feather on each side also black: rictal-bristles black and directed downwards; the feathers on the chin have black hair-like tips; hind-neck, entire back, upper tail-coverts and upper wing-coverts, white like the basal portion of the tail, both above and below, vent and under tail-coverts; bastard-wing black; some of the primary-coverts black with white on the basal portion of the outer webs; shafts of tail-feathers blackish on white portion of the upper-surface; submarginal under wing-coverts black, the greater series and under-surface of flight-quills glossy black like the apical portion of the tail below. Bill slate with blue-black tip. Legs black. Total length 430 mm.; culmen 54, wing 290, tail 148, tarsus 68. Figured. Collected at Cooma, New South Wales, in June, 1896, and is the type of *Cracticus hypoleucus intermedius*.

Adult female. Very similar to the adult male but duller, the light parts being grey.

Adult female. (*Gymnorhina dorsalis*.) General colour both on the upper and under-surface black, glossed with steel-blue, varied with white, or greyish-white; rictal-bristles black and directed downwards; the feathers on the chin have hair-like tips; hind-neck and sides of neck white, becoming greyish-white on the mantle and back, with black centres to the feathers, which are reduced to a shaft-streak only on the rump; upper wing-coverts and edge of wing white, varied with black at the tips of the greater series; bastard-wing and outer primary-coverts black, the inner primary-coverts white at the base and along the greater portion of the outer-webs; upper

THE BIRDS OF AUSTRALIA.

tail-coverts and base of tail white with blackish shafts to the latter; tip of tail and outer web of the outermost feather on each side, except at the base, black; under tail-coverts, axillaries, and lesser under wing-coverts white, the greater series of the latter black; the two outer primaries on both wings are in moult; under-surface of flight-quills glossy black; lower aspect of tail similar to its upper-surface. Bill pale blue, darker at the tip, feet and legs black, eyes orange-red. Total length 373 mm.; culmen 51, wing 250, tail 131, tarsus 56. Figured. Collected at Broome Hill, South-east Australia, on the 19th of February, 1919, as is *dorsalis* Campbell.

Immature. Rather like the adult female but duller.

Immature. Rather like the adult female. Sides of neck and a band across the hind-neck cream-white; mantle, back and rump ash-grey, the feathers tipped with whitish, and some of them have dark shaft-lines; scapulars black with steel-blue, or steel-green reflections; upper wing-coverts and outer edge of wing white, some of the greater series marked with blackish-brown at the tips; bastard-wing and primary-coverts black, some of the latter white at the base and along the greater portion of the outer webs; flight-quills black, becoming blackish-brown on the margins of the inner-webs and at the tips of some of the feathers; upper tail-coverts and base of tail white with black shafts to the feathers of the latter, terminal portion of tail black, which colour extends down the entire length of outer web of the outermost feather on each side; crown of head, sides of face, throat, breast, abdomen, sides of body and thighs black, glossed with steel-blue or steel-green; rectal-bristles black; the feathers on the chin are bristly in texture and have black hair-like tips; vent and under tail-coverts white like the axillaries and under wing-coverts; under-surface of flight-quills blackish-brown; lower aspect of tail similar to its upper-surface. Total length 380 mm.; culmen 46, wing 257, tail 138, tarsus 57. Collected in Victoria.

Gymnorhina leuconota Gray.

Eggs. Three to five for a setting, but five are rarely met with. They vary very considerably in the general colouring and markings, shape and size, and run close with those of the common *G. tibicen*. A clutch of three of rather a common variety met with is long oval in shape, ground-colour of a pale greenish tinge, blotched and streaked with light to dark umber, and dull slate, and chiefly at the larger end. Surface of shell slightly granular, and rather glossy. The clutch measures 44 mm. by 27. Another clutch containing four eggs, has a pinkish-white ground-colour, closely covered all over with very minute specks of reddish-brown very closely set together and upon which are blotches and spots of deep reddish-brown, purplish-brown, and slate, and all having around their edges a peculiar smudged appearance. A great contrast to the previous clutch described. The clutch measures 40-41 mm. by 29. A clutch of three has quite a greyish ground-colour upon which are very few markings, each egg possessing a few scattered spots and hair-lines of umber and dull slate. Surface of shell rather granular and somewhat glossy. The clutch measures 43 mm. by 29.

Nest. A large open dish-shaped structure of sticks and twigs, and lined with bark, grass, wool, cow-hair, etc., and placed at heights varying from 12 to 40 feet or more. Nest over all measures about 13 to 18 inches.

Eggs. In the form named *dorsalis* there appears to be much more uniformity in the general colour and markings, and in shape and size of the eggs of this bird than is the case with those of any other species of the *Gymnorhina*; consequently a typical clutch is very easily picked out from a series of fourteen lots for comparison. The eggs vary from three to five for a setting, and four eggs appear to be the most usual number met with. A typical clutch of four is rather swollen oval in shape.

WHITE-BACKED MAGPIE.

Ground-colour very pale bluish-white, well covered with smudges and smears of umber, brownish-red, and pale purplish-slate. Surface of shell smoothly granulate, and rather glossy. The clutch measures 40 mm. by 29. Another clutch of four, which is rather oval in shape, has a ground-colour of a pale greenish-white, well marked all over with spots and blotches of dark, rusty-brown, and a few pale slate markings here and there. Surface of shell rather smoothly granulate, and somewhat glossy. The clutch measures 40-41 mm. by 29. Another clutch which is beautifully and delicately marked, is of rather an unusual variety for this species. Very long ovals in shape. Ground-colour of a soft and delicate bluish-white, rather sparingly marked with rusty-brown and dull purplish-grey, the markings being chiefly confined to the larger end of each egg. Surface of shell fine and smooth, and possessing rather a good gloss. Under the lens the shell shows numerous pin-point pittings all over. The clutch measures 40-41 mm. by 25-26.

Nest. The usual *Gymnorhina* type, and placed in a tree at heights varying from 15 to 30 feet or more.

Eggs. In the Tasmanian form the eggs vary much in the general colouring, markings, shape and size ; and from three to five forming the clutch. The eggs are devoid of the rich reddish markings so common in those of the Australian forms. A clutch of four of the variety mostly met with has a pale greenish-white ground-colour, well blotched and streaked, as well as having many hair-like markings, with umber, dark rusty-brown and dull slate. Very swollen oval in shape and approaching to pyriform. Surface of shell rather granular, and slightly glossy. The clutch measures 42 mm. by 30. Another clutch of four is long oval in shape, ground-colour of a pale greenish-grey, well spotted and blotched with umber and dull slate markings, and in colour and markings closely resemble some forms met with of those of the Black-faced Cuckoo-Shrike (*Graucalus novæhollandiæ*). Surface of shell slightly granular and rather glossy. The clutch measures 43 mm. by 26.

Nest. The usual large open dish-shaped structure ; composed of small sticks and twigs, and lined with grasses, rootlets, wool and feathers. Placed in a bush or tree from 12 to 50 feet up from ground.

Breeding season. July to February.

WHEN Gould published his preliminary account of the Birds of Australia, his Synopsis, he introduced *Cracticus hypoleucus* as a new species from Van Diemen's Land. When he prepared his full and complete account he adopted Gray's generic name of *Gymnorhina* for the larger species, proposing a new species, *G. leuconota*, but also changing the name of the Tasmanian species to *G. organicum*, apparently on account of the term *hypoleucus* being inapplicable to the species, but such name changes are not allowed. Moreover, as it is generally allowed that the two above named are only subspecifically separable, the name *hypoleucus* must be used specifically for both forms.

Gould wrote of his "*G. organicum*" : " This animated and elegant bird is a native of Tasmania, and appears to be very local in its habitat, for while it is never found below Austin's Ferry on the southern bank of the river Derwent, it is very plentiful on the opposite side, and it is also to be met with in small troops in all the open parts of the country ; but I did not observe it on the banks of the Tamar. When perched on the dead branches of the trees soon

THE BIRDS OF AUSTRALIA.

after daybreak, it pours forth a succession of notes of the strangest description that can be imagined, much resembling the sounds of a hand-organ out of tune, which has obtained for it the colonial name of the Organ Bird. It is very easily tamed; and as it possesses the power of imitation in an extraordinary degree, it may be readily taught to whistle various tunes as well as to articulate words; it consequently soon becomes a most amusing as well as an ornamental bird for the aviary or cage. The stomach is very muscular, and the food consists of insects of various kinds, grubs, caterpillars, etc., which are procured on the ground."

Mr. J. W. Mellor has written me: "I have met with this form all over Tasmania, where its general habits are very similar to those of the mainland White-backed form. Its call also is about identical and its nest and eggs are also very similar in every respect."

Mr. Frank Littler has written me: "*G. hypoleuca* is only found in Tasmania and not in the islands of Bass Straits. This is one of our best songsters, its voice being very powerful and pleasing. Early on a summer's morning nothing is more delightful than to hear a number of Magpies pouring forth their melodious song. Morning and evening are the times for most of the singing. It is no uncommon thing to hear them burst into song in the middle of some bright moonlight night. It is a very strong flyer, long distances, comparatively speaking, being traversed without a perceptible movement of the outstretched wing. They are most useful, as they eat the grass grubs and wireworms, the larvæ of the hepialid moth (*Oncopora intricata*) being also a favourite item; about sunrise is its chief feeding time. When not engaged in seeking food most of the time is passed among the branches of lofty trees. It moves in small flocks of say six to twelve, although occasionally far larger flocks may be seen. The largest flock I have seen recently round Launceston consisted of forty-seven birds. It is somewhat pugnacious, and at nesting time will fly down at any one passing the tree in which the nest is situated."

A more complete account had been previously published by Mr. Littler, and I note he recorded: "To Tasmania belongs the privilege of being the first State to recognise the Magpie as being of economic value and to extend protection to it. In 1879, under the Game Protection Act, 42 Vict. No. 24, it was decreed that whosoever killed the birds or destroyed their eggs would be liable to a penalty not exceeding £1."

Miss Fletcher, Messrs. McClymont and H. Stuart Dove have also contributed articles to the *Emu* dealing with the Tasmanian bird and confirming the above account.

McClymont wrote: "On the 24th July a Magpie flew into a black wattle and piped for the space of half an hour—it may have been to please his mate.

WHITE-BACKED MAGPIE.

Variations were introduced such as I had not heard at other seasons of the year. Tail and body moved continually whilst he was singing."

Under the name *G. leuconota* Gould wrote: "This fine species of *Gymnorhina*, which has been confounded by the French writers with the *Coracias Tibicen* of Latham, inhabits South Australia, Victoria, and New South Wales. It is said to be tolerably abundant at Port Phillip, and that it is sometimes seen on the plains near Yass. For my own part I have never met with it in New South Wales, but observed it to be rather abundant in South Australia. In the extreme shyness of its disposition it presents a remarkable contrast to the *G. Tibicen*; it was indeed so wary and so difficult to approach, that it required the utmost ingenuity to obtain a sufficient number of specimens necessary for my purpose. Plain and open hilly parts of the country are the localities it prefers, where it dwells much on the ground, feeding upon locusts and other insects. In size it is fully as large as any species of the genus yet discovered; it runs over the ground with great facility, and frequently takes long flights across the plains from one belt of trees to another; in other parts of its economy it so nearly resembles the *G. Tibicen*, that it would be useless to repeat a description of them. The same single clear note and early carol of small companies perched on some leafless branch of a *Eucalyptus* appears characteristic of all the members of the genus."

Captain S. A. White has written me that it is "A very common bird in South Australia and a useful one, for they destroy much noxious insect life. They have a strange habit at times of chasing birds and I have seen them chase a Ground-Lark or Pipit to an immense height, but I have never seen them catch a small bird, but I do not doubt they do so at times; they will pursue imported Starlings and Blackbirds, the latter through thick undergrowth. They become very vicious at times when nesting and will attack all who come near the nesting site, even inflicting severe wounds through a felt hat. Their song or carol is one of the most beautiful and pleasing of Australian birds; they carol much on moonlight nights. They are very local, one pair breeding in the same tree year after year."

Writing from Cobbora, New South Wales, Mr. Thos. P. Austin states: "*Gymnorhina leuconota* is a very rare bird here, but one has mated with a Black-backed, and reared their young in the same tree for the last three years; this year (1915) they built in another tree, and I took a clutch of three eggs, and they then built another nest in a neighbouring tree and laid another three eggs. The habit of the present species are very similar to those of the Black-backed, but in the Western District of Victoria, where they were at one time extremely numerous, and probably are still, they appear to feed upon the ground in very large flocks. In the parts where there was no native timber

THE BIRDS OF AUSTRALIA.

they would flock into the plantations to roost during the autumn and winter nights in thousands. In some districts many years ago I remember this species was very destructive in orchards; one fruit they strangely took a great liking to was walnuts and they never allowed one to ripen."

Mr. F. E. Howe has written me: "The carol of this bird is usually the first bird note heard in the morning and nothing can be more delightful than to hear a party of four or five utter their joyous notes. It is a good friend to the orchardist in this district and they are always noticed patrolling the furrows between the trees. It nests later here, usually laying in October."

Mr. A. G. Campbell has sent me a note: "In the vicinity of Sunbury, Victoria, it is a feature of the evening to witness the Magpies coming to roost. By day they are out in parties scattered far and wide over the treeless basalt plains. When the sun goes down, reminding them of approaching night, they rise high on the wing to turn towards home. They appear to sail rather than fly, for their wings are not opened to their full extent and they move them but little. As each party comes to the edge of the gorge they rest for awhile on a stone wall or fence uttering their single whistling note. What a weird call this is as it travels over the plains; few other birds can be heard so far. Then the party as they see another lot coming in behind take wing again and sail leisurely down into the timber, where they are greeted with joyous carols by their mates who have arrived earlier."

Mr. E. J. Christian states: "This bird is savage, during breeding season, but not so fierce as *G. tibicen*."

Mr. Sandland has written: "Commonest bird, except the Crow, round Burra, South Australia, and ten miles east, but when one leaves the hills it is noticed that they thin out and their place is taken by *G. tibicen*. Have seen a few *G. leuconota* at Morgan on the Murray."

Mr. Edwin Ashby's note reads: "Common everywhere south of Petersburg in South Australia and throughout Victoria. This was the species in the neighbourhood of Cooma, New South Wales, while so far as my observations went the black-backed form was the commonest round Yass in the same state in March, 1909."

Later he wrote: "This is the familiar Magpie of the southern portions of the States of South Australia and Victoria. It is undoubtedly one of our most useful birds, keeping down, as it does, those forms of larvæ that are most destructive to the roots of grass and other herbage. Undoubtedly they also take toll of small fledglings, but the good they do out-balances the harm. Their favourite nesting place is high up in some lofty gum. At the nesting season the parent birds are most pugnacious, swooping down on the intruder; it is quite a common practice for them to knock off the caps from small boys'

WHITE-BACKED MAGPIE.

heads. The full flute-like notes of this bird are heard best with the first streak of dawn or in the early night when it is quite too dark to see the roosting bird in the tree-top. I believe at no other time can the complete series of flute-like notes, that form this bird's song, be heard to perfection; a matin song and vesper hymn, whose charm is enhanced by the absolute stillness of the forest at those hours"; and about the Tasmanian bird he noted: "This dwarf race is very numerous throughout Tasmania, in habits and song it is very similar to its mainland relative. I rather doubt whether the song of the insular race is quite equal to that of the breeding birds of the dominant species on the Adelaide hills."

Mr. J. W. Mellor writes: "The White-backed Magpie is the typical southern form, found all over South Australia proper and Victoria, also in the southern parts of New South Wales; but as one gets into the northern part of that State the black-backed and white-backed species overlap. The cultivated land and forest country are the home of the Magpie, and it is a most useful bird in eating up insect pests; the farmer sometimes condemns him for eating corn, but really he is only searching for insect pests that attack the corn. The note of the Magpie is a beautifully full and melodious warble and hearty carolling sound, so well-known to everyone, yet so hard to explain in words. It is full of music, especially when heard in the early morning when the dew is on the grass and the air is rarefied; the notes float out with a force and volume that is really surprising and can be heard a great distance off, the male being especially loud and noisy in his carolling to his mate who is most likely in a neighbouring tree and who will answer him with a pleasant carol. The birds will be often heard calling and answering on a moonlight night when the air is clear and still, and they can be heard at least half a mile off. The nesting season often starts early and ends late, beginning in July and continuing for quite six months; in the northern arid parts of the state they are not so regular, breeding abundantly at any time after heavy rains."

Hall's notes in connection with Victorian birds, hereafter referred to as regards systematics, may be abridged as regards habits here: "The following observations have been made in the south-east of the continent, and they relate to the species *G. leuconota* Gould, and what I take to be its variety or subspecies *G. tibicen* Latham. In certain areas the subspecies is so fixed as apparently to be a species; in others the interbreeding and the specimens showing reversion are so common as to make them inseparable; while again in the far back-country of all the eastern states is shown the strong evidence of lesser dimensions, apart from dichromatism. Yet these lesser dimensions are not quite confined to the inland and drier areas. Their points of resemblance are so many and those of difference so few that one strongly inclines to mark them

THE BIRDS OF AUSTRALIA.

as one variable species. In habitat both are the same; flight, gait, mode of hunting for food, and the food itself are of the same kind. . . . The difference appears to be in the plumage markings; possibly too, in warble and temperament, varying with the area. . . . The warble of the 'Black-back' consists of about twelve distinct syllables, and is finished with an indescribable, delightful jubilant note. In every instance the female commences the warble, the male falling in at the last note, but holding it out longer than the female. The 'White-back' rarely indulges in a song, rendering it in a less musical style, and only in a chorus. The syllables are fewer and shorter. The last note is finished with a sharp piping 'Coo-oo,' the emphasis being put on the 'Coo,' whereas the 'Black-back's' last note is a distinct 'Croo-oo-oo,' the stress being placed upon the 'Croo' and the last 'coo.' This accentuation is, however, peculiar to the male bird only. In temperament the 'White-back' appears to be more savage than the 'Black-back.' In breeding time the 'White-back' will attack almost any living thing of large dimensions, the 'Black-back' rarely interfering with anybody." Then followed a complete series of observations detailing plumage changes from nestling to adult.

Mr. Tom Carter has written: "*Gymnorhina dorsalis* is generally distributed through the south-west of West Australia, extending, along the coastal areas as far north as the Murchison River (about Lat. South 28°). There were several forests of the heavily timbered extreme south-west corner where these birds did not occur in the earlier years (1886-1896), notably areas of large Jarrah timber (*Eucalyptus marginata*), which forests are very dark and gloomy, and usually devoid of bird life to a very great extent, and the Magpies prefer more open country and sunlight. An old friend of mine, a pioneer of the Vasse district, pointed out to me that Magpies were fairly common on the east side of the Carbadup River (some distance south-west of the Vasse River), but were not seen on the west side, where the Jarrah was large and dense. This was a fact that I personally confirmed in the course of driving with him, on several occasions, across the Carbadup River to the Margaret River on the coast, where my friend also had land. Several times my friend took young Magpies with him to his house on the Margaret River and let them free, but for many years they disappeared in the course of a few days, but eventually, as the coastal country became more settled and clearings were made in the dense forests, the birds remained and increased. In February, 1910, when travelling in the mail coach between the Blackwood and Warren Rivers, the driver, who had travelled the track for many years, pointed out some Magpies to me at a certain spot, and said it was the first time he had ever seen any there. This species was more numerous about Broome Hill than any other part of my observations. When driving along the roads, some of these birds were

WHITE-BACKED MAGPIE.

always in sight. They were also noted at Kellerberin, but were never seen within a radius of about six miles round the town of Albany, but they occurred sparingly on the King River, about seven miles distant from that town. When driving north of Albany towards the Stirling Ranges in 1910 the first Magpies were seen at a farm on the eastern end of the Porongorup Ranges, about 35 miles from Albany. There was always a party of about *eleven* birds about my homestead near Broome Hill, except in the breeding months, when the old birds were busy at their nests; *then* the party was reduced to four or five birds of the previous year, still in the *brown* phase of plumage, which had become frayed and ragged. Thus in my diary: 'Sept. 5, 1908: Five birds at house in brown plumage of last year, apparently moulting, tail-less and ragged. Oct. 5, 1909. Last year's birds at house, very ragged and losing their tail and wing-feathers (apparently Magpies do not breed until two years old). August 26, 1910: Only four last year's birds left at house, still in brown plumage. The adults away nesting. The male birds occasionally come to the house for food for sitting female (?) and themselves.' Early in May the adult males usually begin to sing their beautiful evening carol from the summit of a lofty tree. It is also sung in the early morning, but not for so long, as the birds interrupt it by feeding intervals. In May the birds, not already paired, have desperate fights for their future partners. Black-backed birds (the females?) often joined in a lusty chorus of singing, when on the ground, with a party of adult males and immature birds, and the latter also join in the frequent chorus of song, when the birds all run together, heads inwards, and turning their beaks upwards, they seem to 'chortle' and sing one against the other. Nest building usually commences in earnest in July, and many eggs are laid by the end of that month, but August is the chief laying month, the clutch usually three, sometimes four. Many eggs are still in the nests in September, and one clutch of three fresh eggs was found as late as Oct. 28th, 1906, perhaps a second brood. The nests are sometimes bulky, occasionally quite small, built of sticks and twigs, and lined with grass, roots, and long straws. The nests are usually at a considerable height above the ground, from 30 to 60 feet, rarely less than 20 feet. The female appears to perform at least the bulk of the incubation, as at that time the handsome white-backed adult males are only in evidence feeding about the land. When the young birds leave the nest, the parents feed them in the open country for several weeks, probably because at that time of year, the grass is still fairly green, and food abundant. The young birds of the year were usually introduced by the parents to feed on scraps around the homestead, sometime in December. They are fed by the parents for a long time after they leave the nest, and they follow the old birds about with open beak, uttering a whining note to induce them to feed them, often until March of the following

THE BIRDS OF AUSTRALIA.

year, or about six months after leaving the nest. Although every year there were five or six nests within sight of my house, the party that habitually fed within a few yards of it was almost always eleven in number, excepting during the breeding season, as previously mentioned. The birds became excessively tame, feeding close to the house and even on the verandah. Whenever I began cutting up the carcase of a sheep at the meat safe, 10 yards from the house, this party of birds would hasten up at the sound of the meat chopper, and some of the bolder birds used to take scraps of meat from my fingers. They used to peck particles of fat and meat from the sheepskins hung in the out-buildings to dry, and do considerable damage by tearing holes in them. When food was thrown to the fowls in the large netted fowl run, some of the bolder male Magpies often chased the fowls away from their meal. On the other hand, the Magpies would allow no Hawk to come near, but several of them would unite in attacking and driving any away that came too close, and also attacked Wedge-tailed Eagles in the same way, bullying them until they were glad to leave the premises. Cats, Owls, etc., were also attacked and mobbed. When some of the surrounding nests of the Magpies had young birds, the adult males would savagely fly at anyone going near, usually coming up from behind one, with a peculiar buzzing whirr of their wings, and a vicious snap of the beak as they passed within a few inches of one's head. Sometimes they came from the front straight for one's face, until within about a yard, when they swerved above or aside. Although none of us were ever actually pecked, we judged it wise not to allow our children to go away from the house unattended at such times. Although I never saw a Magpie actually attack young lambs, I have so very frequently seen them eating out the eyes, and feeding on the flesh of freshly killed and bleeding lambs, that I have not the slightest doubt but that they do kill weakly lambs, unable to walk, that are abandoned by their mothers. Several of my neighbours assured me that they had seen Magpies killing, under such circumstances, live lambs. On one occasion I poisoned the carcase of a lamb upon which a Wedge-tailed Eagle had been feeding. The next day seven dead Magpies and a Brown Hawk were alongside it. In April, 1912, as my small crop of grapes in the orchard was rapidly diminishing, I carefully covered the row of vines with small mesh wire netting, on a framework of sticks and well weighted down to the ground. The next morning I found the house party of Magpies had managed to force a way underneath, and had finished off the rest of the grapes. These birds also eat small figs off the tree, but don't seem to trouble peaches or apples. On Oct. 25th, 1907, I saw in a cage at Katanning (12 miles from Broome Hill) a beautiful variety of this species, which was of a uniform silver-grey colour. I was informed that it had been obtained from a brood of young of the same colour, on the Buchanan

WHITE-BACKED MAGPIE.

River, 30 miles north. There is still a great amount of information wanting as to the various phases of plumage before the fully adult stage is obtained, and although I had excellent opportunities of learning these, I must plead that a sheep farmer is a very busy man and he cannot be *always* studying ornithology or any other '-ology,' but on May 4th, 1911, a bird, eighteen months old, kept at the house, had its back almost all black, with a few white edgings to the mantle generally. On November 18th of the same year, the back of its neck was still mottled grey. The earliest date upon which young birds were heard in a nest was August 21st, 1908. On Sept. 18th, 1910, a bird had been sitting on its eggs for some time and they hatched a day or two afterwards. Young birds left this nest on Oct. 19th. Young birds were first heard in another nest on Oct. 17th and they left it on Nov. 22nd. At the house on Feb. 25th, 1912, young birds of previous year began to sing."

On the occasion of the recent visit of the Royal Aust. O.U. to Western Australia, eastern ornithologists met with the western form in life and their comments are here reproduced.

Captain S. A. White has written: "This is a very puzzling bird, and one would require a good long series to give a definite opinion upon the colour phases. The mottled coloration of the immature bird is very remarkable, and the writer is of the opinion that this bird is worthy of specific difference."

Mr. Edwin Ashby wrote: "Common at Claremont and Watheroo, but wary. I secured a female which is remarkably like the Black-backed species, except that the white neck collar is much less pronounced, and there are some white flecks in the middle of the black saddle. It seems a fully adult bird in mature plumage. The male birds appeared to be similar to our White-backed species. Truly, the combination is not only remarkable, but also most distinctive."

Mr. J. W. Mellor stated: "A few were seen, but not common, as in the south. The call is quite different from that of the nearly allied White-backed species. One of its call-notes resembles the double call of the Brown Hawk, uttered when flying. On several occasions I paused to make certain that the call was not made by a Hawk."

These remarks are interesting as showing the opinions of different workers upon very slight differences when the differently coloured female birds are examined; the males show scarcely any difference save in the longer thinner bill which may not be constant. It may be remarked that when a series of birds showing these plumage changes was examined by Ogilvie Grant he did not regard them as of any value and, ignoring the lengthened bill as also of little value, did not even separate the western form subspecifically. I do not

THE BIRDS OF AUSTRALIA.

doubt the subspecific value of the form, but I would not, at present, allow specific rank to such a form.

As already pointed out the Tasmanian bird was first described by Gould and then the South Australian one as a new species, although only differing in size. Half a century afterwards Campbell described the West Australian bird as a new species on account of the plumage of the female, selecting the name *dorsalis* as the back was brownish-black with white edgings, whereas the adult female of the eastern form has a pale grey back.

When I prepared my "Reference List" I allowed four forms thus:

Cracticus hypoleucus hypoleucus Gould.

Tasmania.

Cracticus hypoleucus leuconotus (Gould).

Victoria, South Australia.

Cracticus hypoleucus intermedius Mathews.

“ Differs from *C. l. leuconotus* in its larger size (Cooma), N.S.W.”

New South Wales.

Cracticus hypoleucus dorsalis (Campbell).

West Australia.

With the correct reference to the genus *Gymnorhina* these four were arranged similarly in my 1913 "List."

That the matter of forms is not yet settled may be seen from A. G. Campbell's remarks: "*G. hypoleuca*. Besides being considerably smaller than the Magpie of the mainland, some difference is shown between specimens from the north and south of Tasmania.

Launceston : Total length 13.0, bill 1.55, wing 9.5, tail 5.3, tarsus 2.1 inch.

Bagdad :	13·5	1·76	9·25	5·5	2·1
----------	------	------	------	-----	-----

G. leuconota. This was common along the coastal clearings (of Kangaroo Island). One specimen (in captivity) had a narrow black band across the back."

I consider that two species are recognisable, *G. hypoleuca* and *G. tibicen*, but the fact that the N.S.W. form of the former is the largest, agreeing in size with the latter, is very significant.

The interbreeding and suggested intergradation of the two species *G. tibicen* and *G. leuconota* provided speculation for Robert Hall some twenty years ago, when he conjectured an Ancestral Piping-Crow of a uniform black type from which evolved one species only, *G. leuconota* (White-backed Magpie), with one variety, namely, that having a black back, known as *G. tibicen*. This essay was cleverly reviewed in the first volume of the *Emu* by an unknown writer, whose identity as H. Kendall is suggested from the clear reasoning displayed. Thus was written : “ It is hard to define a species from a subspecies or variety,

WHITE-BACKED MAGPIE.

but it may be fairly taken for granted that *a species* stands good where the specific markings or features are *constant as a rule*. Upon this rule, as well as on geographical distribution, the Magpies can be readily divided into four species or races, at least, which Mr. Hill has not apparently disproved. (1) There are the adult birds (male and female respectively) with white and grey backs (*G. leuconota*) confined to the south-eastern coastal region chiefly; (2) the lesser-sized white and grey backs (*G. hypoleuca*) to Tasmania; (3) the white and dark grey or black backs (*G. dorsalis*) to the western territory; while (4) the black backs (both male and female) *G. tibicen*, represent the great balance of the continent, particularly the eastern half. With regard to the nestlings of the extreme eastern and western 'White-backs' there is a noticeable difference. Those of the east (*leuconota*) possess *rust-coloured* or *greyish mottled* backs, while those of the west (*dorsalis*), not to mention their longer and narrower bills, have *brownish-black* or *almost black* backs. . . . By the way, it may be noted too that the further north the smaller the birds."

This review of the "races," be it noted that these were suggested of the Magpies, is good and had the suggested investigation resulted much might have been done.

Last year Cole published the results of criticism of a series of birds in the "overlapping districts" showing evolution of white-backs from black-backs and this may to some extent be admitted.

This brought forth a note from Hall stating: "The position of Magpies, as I now see it, is

Gymnorhina tibicen Latham—The Australian Magpie."

A. B. Dimorphics.

A. Black-backed Magpie.

B. White-backed Magpie.

*a*¹ Southern Race.

*a*¹¹ Northern Race.

*a*¹¹¹ Western Race.

*b*¹ Tasmanian Race.

*b*¹¹ South-eastern Race.

*b*¹¹¹ Western Race.

Yielding to the law of priority, I put Latham's name, though I should have preferred Gould's *hypoleuca*, for the more developed bird. The matter of races is still an open one."

Translated into present day scientific nomenclature this reads:

Gymnorhina tibicen Latham.

*a*¹ *Gymnorhina tibicen tibicen*.

*a*¹¹ *terræreginæ*.

THE BIRDS OF AUSTRALIA.

a^{111}		<i>longirostris.</i>
b^1	(<i>hypoleuca</i>)	<i>hypoleuca.</i>
b^{11}		<i>leuconota.</i>
b^{111}		<i>dorsalis.</i>

This arrangement is not much different from the generally accepted ones, the status of the groups *A* and *B* being doubtful and their specific value is not invalidated by either Hall's or Coles' observations.

I would not hypothesize a "wholly black" ancestor as this is absolutely negatived by the immature plumage stages, a mottled greyish bird being suggested; then the evolution of a white-backed from a black-backed form may be admitted, but apparently it has been a semi-independent evolution; probably the pure black-back evolving in the north at the same time as the pure white has developed in the south from a mottled blackish-back form.

It is possible that the white-backed form is at present more virile and may eliminate the black-backed forms wherever they meet as has been done entirely in Tasmania and South-west Australia. The geographical distribution of the two species is worth a little notice. In the extreme north of Queensland and apparently Melville Island and some parts of North-west Australia it is at present absent, but it has reached Groote Eylandt in the Gulf of Carpentaria. I have pointed out that the New South Wales form of *G. hypoleuca* is the largest, while *G. tibicen* also reaches its largest size in that State. The northern forms of *G. tibicen* are the smallest and the southern forms of *G. leuconota* are the smallest.

GENUS—MELLORIA.

MELLORIA Mathews, Austral Avian Record,

Vol. I., pt. 5, p. 114, Dec. 24th, 1912.

Type (by original designation) *Cracticus spaldingi* Ramsay.

I DIAGNOSED this genus as : " Differs from *Cracticus* in its stouter longer bill and longer wing and tail and stouter feet."

The bill is formed like that of the preceding genus, but has a very long curved-over tip with a posterior notch into which the tip of the lower mandible fits ; the feathering does not project into the nasal impression which is scarcely marked, while the nostrils are minute linear slits basally placed half way between the culmen ridge and the lateral edge of the mandible ; small triangular interramal feathered space about one-third the length of the mandible ; no nasal bristles but half a dozen rictal bristles, four of them strong ; the culmen is flattened and rounded and wider at the base than deep.

The wing has the fourth, fifth and sixth primaries subequal and longest, the third and seventh subequal and a little shorter, the second equal to the ninth primary but longer than the secondaries ; the first primary is short, less than half the length of the third, but more than half the length of the second.

The tail is long and a little rounded, the twelve feathers rather broad.

The legs are long and the tarsus is practically booted, the scutes having fused and scarcely recognisable in front, the hind portion bilaminate ; the toes are long, the claws very long and sharp ; the hind-toe and claw is shorter than the middle toe and claw, while the inner toe and claw is almost equal to the middle toe alone, the outer longer than the inner and subequal with the middle one, but the outer claw less than the middle claw.

MELLORIA QUOYI.

BLACK BUTCHER-BIRD.

(PLATE 484.)

[BARITA QUOYI Lesson and Garnot, Bull. Sci. Nat. et Geol. (Ferussac), Vol. X., p. 289, 1827: Dorey Harbour, N.W. New Guinea. Extra-limital.]

Cracticus spaldingi Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 211, Jan., 1878: Port Darwin, Northern Territory; Masters, *ib.*, p. 271, May.

Cracticus quoyii Gould, Birds Austr., pt. xxviii. (Vol. II., pl. 53), Sept. 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 183, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 94, 1883; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 31, 1899; Rothschild, Bull. Brit. Orn. Club, Vol. X., p. xl., 1900; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 299, 1901; Cochrane, Emu, Vol. III., p. 49, 1903 (N.Q.); Cornwall, *ib.*, p. 189, 1904; *id.*, *ib.*, Vol. IV., p. 138, pl. vii. and viii., 1905; *id.*, *ib.*, Vol. VI., p. 83, 1906; *id.*, *ib.*, Vol. VIII., p. 138, 1909; Broadbent, Emu, Vol. X., p. 235, 1910; Barnard, *ib.*, Vol. XI., pp. 27-30, 1911; Campbell, *ib.*, Vol. XIII., p. 71, pl. xii. f. 1 (egg), 1913; Macgillivray, *ib.*, p. 174, 1914; H. L. White, *ib.*, Vol. XVI., p. 225, 1917; Campbell, *ib.*, Vol. XVIII., p. 188, 1919.

Cracticus spaldingi Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 211, 1878; Masters, *ib.*, p. 271; Ramsay, Tab. List Austr. Birds, p. 8, 1888; Hall, Key Birds Austr., p. 32, 1899; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 21, 1906; Mathews, Handl. Birds Austral., p. 83, 1908; Le Souëf, Emu, Vol. VIII., p. 62, 1908; Campbell, *ib.*, Vol. X., p. 337, 1911.

Cracticus rufescens De Vis, Proc. Linn. Soc. N.S.W., Vol. VII., p. 562, April, 1883: Tully River Scrubs, North Queensland; Gould (Sharpe) Birds New Guinea, pt. xxiii. (Vol. III., pl. 16), 1887; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 32, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 306, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 18, 1906; Mathews, Handl. Birds Austral., p. 83, 1908; Campbell and Barnard, Emu, Vol. XVII., p. 37, 1916; Macgillivray, *ib.*, p. 212, 1918.

Cracticus quoyi tunneyi Hartert, Nov. Zool., Vol. XII., p. 228, Feb. 11th, 1905: Alligator River, Northern Territory; Hall, Key Birds Austr., 2nd ed., p. 112, 1906.

Cracticus quoyi rufescens Hartert, *ib.*; Mathews, *ib.*, Vol. XVIII., p. 373, 1912.



H. Grönvold. del

MELLORIA QUOYI.
(BLACK BUTCHER-BIRD).

Witherby & Co

BLACK BUTCHER-BIRD.

Cracticus quoyi spaldingi Mathews, *ib.*

Cracticus quoyi jardini Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 94, Sept. 18th, 1912 :
Cape York, Queensland.

Melloria quoyi spaldingi Mathews, List Birds Austr., p. 242, 1913.

Melloria quoyi rufescens Mathews, *ib.*

Melloria quoyi jardini Mathews, *ib.*

DISTRIBUTION. North Queensland as far south as Mackay and Northern Territory.

Adult male. Black phase. General colour above and below glossy blue-black with steel reflections; primary-quills dull blackish-brown; tail similar to the back with obsolete cross bars; forepart of head and lores velvety-black with black hair-like tips to the feathers similar to those on the chin and upper throat; under-surface of flight-quills blackish-brown with glossy reflections; lower aspect of tail similar to its upper-surface. Eyes brown, feet black, bill black with bluish base. Total length 330 mm.; culmen 50, wing 175, tail 140, tarsus 41. Figured. Collected at Bellenden Ker, North Queensland, on the 11th of December, 1899.

Adult female. Similar to the above.

Immature resemble the adults in general.

Adult female. Red phase. General colour of the upper-surface dull blackish-brown with rufescent-buff shaft-lines to the feathers on the top of the head, back, rump, and upper tail-coverts; lesser upper wing-coverts also blackish-brown, the buff deeper in colour and occupying the greater part of the feather, becoming paler on the median coverts and inclining to ochreous-brown on the greater series, bastard-wing, primary-coverts and outer margins of flight-quills, the inner webs of the last blackish with buff margins; middle tail-feathers dark brown, paler on the lateral ones, which are buff on the inner webs; sides of face rufescent-buff with black hair-like tips to the feathers; rictal-bristles black; chin greyish-buff with black hair-like tips to the feathers; throat, breast, sides of body, thighs, and under tail-coverts fawn-colour like the axillaries and under wing-coverts; under-surface of flight-quills greyish-brown fringed with dull buff; lower aspect of tail isabelline-buff, becoming darker on the central feathers. Eyes brown, bill slatey-blue, feet blue-grey. Total length 310 mm.; culmen 44, wing 168, tail 136, tarsus 40. Figured. Collected on the Barron River, near Cairns, North Queensland, on the 29th of February, 1912.

Adult male. Similar to the above.

Immature female. Crown of head, hind-neck, sides of neck, and mantle blackish with white or buffy-white shaft-streaks to the feathers, becoming paler and inclining to dark smoke-brown on the back, rump, and scapulars; upper tail-coverts cinnamon with dark blackish markings; upper wing-coverts dark smoke-brown with whitish or rufescent shaft-lines and pale edges to the feathers; flight-quills dark smoke-brown, paler on the outer webs and broadly margined with buff on the inner ones, chiefly on the basal portion; tail-feathers also smoke-brown with dark shafts and pale margins; rictal-bristles whitish at the base with black tips; base of forehead, lores, and sides of face buff like the line over the eye; chin and throat whitish-buff with black hair-like tips to many of the feathers; breast, abdomen, and thighs pale buff with dusky bases to the feathers, inclining to cinnamon-buff on the sides of the body; under tail-coverts dull cinnamon; axillaries, under wing-coverts, and inner margins of flight-quills below bright fawn-colour, remainder of quill-lining pale

THE BIRDS OF AUSTRALIA.

glossy brown; lower aspect of tail fawn-brown. Collected near Cairns, North Queensland, in November, 1911.

Younger birds have the centre markings broader.

Eggs. Clutch, three eggs of a greyish-green colour, with a few markings on the larger end of a dark brown, some markings under the surface being of brownish-purple. They are very similar to some specimens of the eggs of *Cracticus rufescens*, but smaller. The clutch measures 33 mm. by 25. (Northern Territory.)

Nest. An open and rather shallow cup-shaped structure, loosely built of twigs and rootlets, and situated about 20 feet up from the ground.

Eggs. In the Cairns form the eggs vary considerably in their general colouring and markings, also in their shape and size. A clutch of four eggs, of the most usual variety found, possess a greyish-green ground-colour, marked with roundish spots of umber and dull slate, the markings becoming more thickly crowded at the larger end. Surface of shell smooth and glossy. The clutch measures 33 mm. by 25. Another clutch of three of quite a different variety possesses a creamy ground-colour, spotted with umber and pale slate markings, confined chiefly to the larger end. Surface of shell smooth and glossy. The clutch measures 36 mm. by 25.

Nest. A fairly large open cup-shaped structure, composed of thin sticks and twigs, and neatly lined inside with grass and rootlets, usually a great quantity of rootlets are used for the purpose. Dimensions of nest over all about 10 inches. Usually placed in a tall bush or tree, both in thick scrub and forest country.

Breeding season. October to January.

UNDER the name *Cracticus quoyi* Gould observed "We have abundant evidence that the zoology and botany of New Guinea and Australia are very similar. In some instances the same species are found in both countries, of which fact the present bird is an example. M. Temminck, to whom I showed specimens of this bird killed in Australia, assured me that they were identical with others from New Guinea. The northern coast is the only portion of Australia in which this bird has been observed. It is tolerably abundant at Port Essington, where it inhabits the mangrove swamps generally, even those close to the settlement. Gilbert states that it is extremely shy and wary, and that the nature of its usual haunts precludes in a great measure all chance of getting a sight of it. He never met with it in any other situation than the darkest and thickest parts of the mangroves, where there is a great depth of mud, and where the roots of the trees are very thickly intertwined; it is among these roots that it is constantly seen searching for crabs. Its note is short and monotonous and very like the name given to it by the aborigines, *Mol-göl-ga*, the second syllable being prolonged and forming the highest note; it also utters other sounds, some of them resembling those of the *Gymnorhina leuconota*; at other times it frequently emits a note very similar to the cry of young birds for food. The stomach is muscular, and the food consists of crabs, and occasionally of coleoptera, neuroptera, and the larvæ of insects of various kinds."

Mr. J. P. Rogers' notes read: "Melville Island. Nov. 20th, 1911. Cooper's

BLACK BUTCHER-BIRD.

Camp. Usually this bird is found where the mangroves are tall and dense, but is occasionally seen on the outskirts of the belts of this growth. It keeps to the same localities and can be heard if not seen day after day near the same spot, as it is a noisy bird with strange loud notes and although difficult to see can often be heard. I have never seen this species away from the mangroves, and am told by the natives it never leaves them. Jan. 30th, 1912. Adults and two young to-day, so this species has bred lately."

Campbell and Barnard wrote: "The Black Butcher-Bird is a melodious songster. Its notes are rich and flute-like. One of its songs has three distinct notes interposed with softer ones. When sufficiently far enough away from the singer so as to lose the softer sounds, the three dominant notes remind you of the trivial round 'Three blind mice.'"

Cornwall investigated the relationship of the Brown and Black Birds after Cochrane had recorded: "Singing early morning 15th July. Fancy the brown one is the male (?); some of the blacks say it is. The brown birds are apparently not so numerous as the black ones."

Cornwall first noted: "I found the nest. I was quickly up alongside the nest which contained three nearly full-fledged young ones, and you can judge the interest I felt when I found that two of them were *brown* and the other jet *black*. I have got the interesting little strangers at home. . . . It is very evident to me that, whilst the adult birds of each sex are quite black, the male being black at all ages, the female's immature plumage is brown." A photo was published showing the young birds in the nest. Next year Cornwall added: "I found three nests last year, in two of which one young one was brown and two black, and in the other two brown and one black. I have found three nests this year; one had three young and the others two each, but all were black. In every case the two parent birds were black. After watching the young birds in captivity it would not surprise me to find that the brown birds are males, for they seem to be hardier and to feather quicker than the black ones. Then, again, we very often note the young brown one warbling very quietly to itself but have not noticed the black ones doing it."

Cornwall later wrote: "My birds moulted in February and March and took on the complete black plumage, which proves that the brown bird assumes the black plumage after the first moult. How did Le Souëf get on with those I sent him?" Mr. D. Le Souëf replied: "Mr. E. M. Cornwall kindly sent me from Cairns, Queensland, three Butcher-Birds from one nest. Two were brown and one black. The black one died shortly after, and proved to be a female; one of the brown went next, and it proved to be a male; the other brown one lived for two years, but at the end of the second year lost his brown

THE BIRDS OF AUSTRALIA.

coat and became jet black, apparently proving that the Rufous Butcher-Bird is only a young male in immature plumage of the Black Butcher-Bird."

Later still, Cornwall recorded this species from Mackay: "The bird is not by any means a rarity in this district. They love the muddy fastnesses of the mangroves, and to observe them 'at home' one must be prepared to put up with much discomfort. When the tides are neap the mangrove flats are sometimes dry for days at a time; then they are comparatively firm, and walking is not difficult, but when the big tide floods them every day they are veritable quagmires, and one flounders knee-deep at every step, whilst countless myriads of sand-flies and mosquitoes add to the general discomfort. Black Butcher-Birds are very local in their habits. Once a pair is located they may always be found within a very short radius. They nest year after year in the same locality, and the remains of several season's nests may be found in the adjoining trees. Hitherto I have not noticed a brown specimen in this district. Nests, each containing three eggs, were noted on 11th and 13th November."

The only other note of interest is the association at Cape York of the Manucode and Black Butcher for nesting purposes. "Towards one another the attitude of these species seems to be of armed neutrality, the Manucode finding a certain amount of protection from being in the neighbourhood of so warlike a bird, but at the same time keeping a watchful eye upon its own eggs or callow young when the ally is near."

Barnard was the first to note the association, and he found that when he robbed the Butcher-Bird's nest the Manucodes deserted theirs and that in order to secure the eggs of the latter he had to leave the former alone; the Manucodes apparently building and laying their eggs after the Butcher-Bird had chosen the locality and built their nest.

Ramsay described a new species from Port Darwin, Northern Territory, which from the description was obviously this form, but the incompetent Gadow placed it in the synonymy of *Cracticus mentalis* Salvadori, from which the description differed in every detail.

Consequently when Hartert examined specimens from Northern Territory, accepting Gadow's disposition of Ramsay's *spaldingi* as correct without investigation (quite correctly had Gadow been at all trustworthy, as no ornithologist could confuse the two species), he renamed the Western form. In the meanwhile De Vis had described as a new species a red-brown *Cracticus* with the name *rufescens*. Rothschild pointed out that this was the immature of the Queensland form of *quoyi*, but that no red-brown specimens were known from New Guinea. Hartert's conclusion was that *rufescens* must be used for the Queensland race of *quoyi*, his disposition reading:

"*Cracticus quoyi tunneyi*."

BLACK BUTCHER-BIRD.

"The black *Cracticus* from the Alligator River are clearly distinct from both *C. quoyi quoyi* and *C. quoyi rufescens*. Their bills are long and slender, as thin as those of *C. q. rufescens*, but much thinner and longer than those of *C. quoyi quoyi*. The wing is also much longer than in either of the two other known forms. There appear to be four forms of black *Cracticus* :—

"1. *Cracticus quoyi quoyi* (Less.). Typical locality : Dorey in Dutch New Guinea. Differs from all the other forms by its much thicker and more swollen bill. Young apparently always black ! Hab : New Guinea, Salwatti, Waigiu, Mysol.

"2. *Cracticus quoyi rufescens* De Vis. Typical locality : Queensland. Differs at a glance from *C. q. quoyi* by its thinner, less swollen bill. Young evidently dimorphic ; sometimes black, more often brown above with rusty-buff stripes, underside rusty-buff. Females (? when fully adult) also sometimes brown, but generally black.

"3. *Cracticus quoyi* subsp. Aru Islands. Like *C. q. tunneyi*, but bills seem to be slightly shorter, and the wings shorter.

"4. *C. quoyi tunneyi* nov. Type. ♂ ad Alligator River. Northern Territory. Differs from *C. q. rufescens* in its much larger size ; bill ♂ 65.5 ; ♀ 53 to 55 ; wing ♂ 205, ♀ 185–188 mm. ; i.e., fully an inch longer than in *C. q. rufescens*. I am unable to say whether the young are black, rufous, or black and rufous."

The error in naming this last form was immediately pointed out by North, and the two Australian forms have been accepted as distinct subspecies of *quoyi* ever since.

I added a third :

Cracticus quoyi jardini.

"Differs from *C. q. rufescens* De Vis (black phase) in its absolutely larger size and from *C. q. spaldingi* in its noticeably smaller bill, which is even less than in New Guinea examples of *C. q. quoyi*, Cape York, North Queensland."

Barnard and Macgillivray do not mention any red-brown birds from Cape York, and Campbell and Barnard state : "Although we were in the region of the Brown birds, those that came under our observation were invariably black, except in one instance. It is remarkable that there is a central belt of Brown birds in the Cairns and Tully River district, while on either side—at Cape York to the north and at Mackay to the south—the birds are always black."

Later, Campbell dealing with birds from the King River, Northern Territory, concluded : "One ♂, wing 195 ; 1 ♀, wing 180 mm. Similar to east coast birds, which are a brighter black. Wing of eastern specimens 170–175 mm. Masters' *spaldingi* may stand, but Gilbert first procured this black Butcher-Bird—a mangrove, mud-loving, crab-hunter."

THE BIRDS OF AUSTRALIA.

The three Australian forms admitted in my 1913 "List" remain

Melloria quoyi spaldingi (Ramsay)

Northern Territory.

Melloria quoyi rufescens (De Vis)

North Queensland (Tully River district).

Melloria quoyi jardini (Mathews)

North Queensland (Cape York district).

GENUS—CRACTICUS.

CRACTICUS Vieillot, Analyse nouv. Ornith.,
p. 37, Apl. 14th, 1816. Type (by “*Cassican—Calybè* Buff=
monotypy) *Ramphastus cassicus* Boddaert.

Barita Cuvier, Le Règne Animal, Vol. I.,
p. 340, “1817,” Dec. 7th, 1816. Type
(by subsequent designation Gadow, Cat.
Birds Brit. Mus., Vol. VIII., p. 93, 1883) *R. cassicus* Boddaert.

SMALLER Cracticine birds with stout hooked bills, hook descending vertically, long wings, long rounded tail and short stout legs. The bill is similar to that of *Melloria* already described in detail, but is proportionately stouter.

The wing formula differs in that the fourth and fifth primaries are subequal and longest, the third a little shorter but longer than the sixth, the second being equal to the seventh, and the first primary half the length of the third but less than the secondaries.

The tail is long and rounded.

The legs are short and stout, the anterior portion of the tarsus showing half a dozen regular scutes, though sometimes these show an inclination to fusion, the claws stouter than in the preceding genus.

CRACTICUS NIGROGULARIS.

BLACK-THROATED BUTCHER-BIRD.

(PLATE 485.)

VANGA NIGROGULARIS Gould, Synops. Birds Austr., pt. I., pl. (III.), Jan. 1st, 1837 : New South Wales.

*Vanga nigrogularis** Gould, Synops. Birds Austr., pt. I., pl. III., Jan., 1837 ; *id.*, Proc. Zool. Soc. (Lond.), 1836, p. 143, June, 1837.

Cracticus varius (not of Latham) Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 261, 1827.

Cracticus nigrogularis Gould, Birds Austr., pt. XXII. (Vol. II., pl. 49), March 1st, 1846 ; *id.*, Handb. Birds Austr., Vol. I., p. 180, 1865 ; Diggles, Ornith. Austr., pt. XIX., 1868 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 95, 1883 ; Hall, Key Birds Austr., p. 31, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 301, 1901 ; Carter, Emu, Vol. III., p. 90, 1903 (N.W.A.) ; Milligan, *ib.*, Vol. IV., p. 154, pl. x., 1905 (W.A.) ; Berney, *ib.*, Vol. V., p. 74, 1905 (N.Q.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 14, 1906 ; Austin, Emu, Vol. VII., p. 30, 1907 (N.S.W.) ; Mathews, Handl. Birds Austral., p. 83, 1908 ; Cornwall, Emu, Vol. VIII., p. 138, 1909 (N.Q.) ; Gibson, *ib.*, Vol. IX., p. 74, 1909 (W.A.) ; Crossman, *ib.*, p. 89 (W.A.) ; Hill, *ib.*, Vol. XII., p. 259, 1913 (N.T.) ; Campbell and Kershaw, *ib.*, p. 276 ; Macgillivray, *ib.*, Vol. XIII., p. 174, 1914 (N.Q.) ; Barnard, Emu, Vol. XIV., p. 47, 1914 (N.T.) ; Macgillivray, *ib.*, Vol. XVII., p. 212, 1918 (N.Q.) ; Campbell, *ib.*, Vol. XVIII., p. 2, 1918 ; S. A. White, *ib.*, p. 23 (S.A.) ; Cleland, *ib.*, p. 283, 1919 (N.S.W.) ; Harvey Brothers, *ib.*, Vol. XIX., p. 35 and pl., 1919 (N.Q.) ; Ashby, *ib.*, Vol. XX., p. 136, 1921 (W.A.).

Cracticus picatus Gould, Birds Austr., pt. XXXIV. (Vol. II., pl. 50), Dec. 1st, 1848 : Port Essington, Northern Territory ; *id.*, Introd. Birds Austr., 8vo, p. 35, Aug. 1st, 1848 ; *id.*, Proc. Zool. Soc. (Lond.), 1848, p. 40, Nov. 14th ; *id.*, Handb. Birds Austr., Vol. I., p. 181, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; *id.*, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 31, 1899 ; *id.*, Emu, Vol. II., p. 51, 1902 (N.W.A.) ; North Austr. Mus. Spec. Cat., No. I., Vol. II., p. 17, 1906 ; Hall and Rogers, Emu, Vol. VII., p. 140, 1908 (N.W.A.) ; Mathews, Handl. Birds Austral., p. 84, 1908 ; Whitlock, Emu, Vol. VIII., p. 182, 1909 (W.A.) ; *id.*, *ib.*, Vol. IX., p. 207, 1910 (W.A.) ; Hill, *ib.*, Vol. X., p. 281, 1911 (N.W.A.) ;

* Also spelt *nigrigularis*.



H. Grönvold. del

CRACTICUS NIGROGULARIS.
(BLACK-THROATED BUTCHER-BIRD).

Witherby & Co

BLACK-THROATED BUTCHER-BIRD.

H. L. White, *ib.*, Vol. XVI., p. 225, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII., p. 37, pl. IX., 1917 (N.Q.); Campbell, *ib.*, Vol. XVIII., p. 188, 1919 (N.T.).

Cracticus robustus (errore) Bonaparte Consp. Gen. Av., Vol. I., p. 367, 1850 : Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; *id.*, Tab. List Austr. Birds, p. 4, 1888 ; Webb, Emu, Vol. II., p. 109, 1902 (N.Q.).

Cracticus nigrigularis subsp. *picatus* Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 96, 1883 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 302, 1901.

Cracticus nigrogularis picatus Kilgour, Emu, Vol. IV., p. 37, 1904 ; Hartert, Nov. Zool., Vol. XII., p. 229, 1905 ; Mathews, *ib.*, Vol. XVIII., p. 374, 1912 ; *id.*, List Birds Austr., p. 243, 1913 ; Söderberg, Kungl. Svenska Vet. Handl., Band 52, p. 98, 1918 (N.W.A.) ; Campbell, Emu, Vol. XXI., p. 194, 1922 (N.T.).

Cracticus nigrogularis nigrogularis Hartert, Nov. Zool., Vol. XII., p. 229, 1905 ; Mathews, *ib.*, Vol. XVIII., p. 374, 1912 ; *id.*, List Birds Austr., p. 243, 1913.

Cracticus nigrogularis inkermani Mathews, Nov. Zool., Vol. XVIII., p. 374, Jan. 31st, 1912 : Inkerman, Queensland ; *id.*, Austral Av. Rec., Vol. 2, p. 60, 1912 ; *id.*, List Birds Austr., p. 243, 1913.

Cracticus nigrogularis mellori Mathews, Nov. Zool., Vol. XVIII., p. 374, Jan. 31st, 1912 : South Australia ; *id.*, List Birds Austr., p. 243, 1913 ; S. A. White, Emu, Vol. XIV., p. 189, 1915 (Central Australia).

Cracticus nigrogularis kalgoorli Mathews, Nov. Zool., Vol. XVIII., p. 374, Jan. 31st, 1912 : Kalgoorlie, West Australia ; *id.*, List Birds Austr., p. 243, 1913.

Cracticus nigrogularis tormenti Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 46, April 2nd, 1912 : Napier Broome Bay, North-west Australia ; *id.*, List Birds Austr., p. 243, 1913.

Cracticus nigrogularis territorii Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 77, Dec. 29th, 1913 : Mt. Shoobridge, Northern Territory.

Cracticus nigrogularis coongani Mathews, Austral Av. Rec., Vol. 5, pts. 2-3, p. 35, Feb. 21st, 1923 : Coongan River, Mid-west Australia.

DISTRIBUTION. Australia generally. Not Tasmania.

Adult male. Entire head and neck all round and breast deep black with black hair-like tips to many of the feathers on the nape, hind-neck and chin ; mantle white ; back and scapulars black ; lesser upper wing-coverts white, median coverts black and white ; bastard-wing and outer greater coverts blackish, more or less marked with white, the inner portion of the latter for the most part white marked with black ; primary-coverts white, irregularly marked with black ; flight-quills black, white at the base on the outer webs of the primaries and some of the inner ones margined with white at the tips on the inner webs, the outer secondaries broadly margined with white on the inner webs, which increases in extent until the whole of the inner web is covered, the middle ones entirely white with black shafts, the innermost ones entirely black ; rump and upper tail-coverts white ; tail black, white at the base and at the tips of the lateral feathers ; rictal-bristles black ; the feathers in front of the eye and base of the forehead are black in colour and bristly in structure ; abdomen, sides of body, thighs and under tail-coverts cream-white ; axillaries and under wing-coverts white ; under-surface of flight-quills blackish-

THE BIRDS OF AUSTRALIA.

brown with a large amount of white on the inner ones ; lower aspect of tail similar to its upper-surface. Eyes dark brown, legs dull olive, bill bluish with blackish tip. Total length 320 mm. ; culmen 50, wing 190, tail 140, tarsus 39. Figured. Collected at Kalgoorlie, West Australia, on the 30th of September, 1905, and is the type of *Cracticus nigrogularis kalgoorlie*.

Adult female has the parts that are black in the male, brownish.

Immature male. Top of head, nape, hind-neck and upper mantle soot-black ; lower mantle grey or greyish with smoke-brown tips to many of the feathers ; back and scapulars dark smoke-brown ; rump and upper tail-coverts cream-white ; marginal upper wing-coverts white, the lesser, median, and greater series dark smoke-brown more or less fringed with white ; bastard-wing uniform smoke-brown ; primary-coverts white marked with smoke-brown at the tips ; flight-quills dark smoke-brown, paler at the tips and white at the base of the outer webs of the primaries except the two outer ones ; the secondaries broadly margined with white on the inner webs which increases in extent towards the inner ones, some of which are partially white on both webs, while the two innermost ones are uniform smoke-brown ; tail smoke-brown with white tips to the feathers which increases in extent on the lateral ones, where the dark pattern is inclining to black ; rictal-bristles black ; lores whitish with dark hair-like tips to the feathers ; a supraloral streak and feathers surrounding the eye dark brown with minute white tips to the feathers which imparts a speckled appearance ; ear-coverts dark brown with pale shaft-streaks ; chin and throat greyish-white with black hair-like tips to the feathers on the former ; fore-neck and breast greyish-buff with dark cross-bars ; sides of breast dark brown ; abdomen, sides of body, thighs and under tail-coverts cream-white like the axillaries and under wing-coverts ; under-surface of flight-quills pale brown ; lower aspect of tail similar to its upper-surface. Eyes brown, feet slaty-grey, bill black at the tip with slate base. Figured. Collected at the Horse Shoe Bend, Finke River, Central Australia.

The eggs of this species are three to four for a setting, (three usually) ; they vary greatly in general colouring, shape and markings. A rather typical clutch of four eggs has pale olive-brown ground-colour, spotted with umber, brown, and a few markings of pale slate, the markings converging and forming a cap at the large end of each egg ; on each cap are several jet-black spots closely resembling indian ink.

Eggs rather long ovals in shape. Surface of shell smoothly granular and glossy. They measure 33-34 mm. by 23. Another clutch of four is swollen oval in shape, ground-colour of a pale creamy-brown, spotted and blotched, particularly at the larger end, with dark olive-brown, dull slate, and black ; the latter colouring taking the form of several small spots on the larger end of each egg. Surface of shell smooth and glossy. They measure 33-34 mm. by 23 (Northern form).

Nest. A rather neat, open and fairly deep cup-shaped structure, composed of sticks and twigs, and chiefly lined with grass stems. Dimensions of nest over all from 6 to 9 inches. Nest generally placed in a forest tree and at a height of from 10 to 35 feet or more.

Eggs. In the typical form the eggs vary considerably in their shape and size, as well as in the general colouring and disposition of the markings. The eggs vary from three to five for a clutch, four being generally found. A clutch of four of one of the most usual varieties met with has a ground-colour of a dark brownish-olive, marked all over with very small markings of even a darker brownish-olive, and become defined at the larger end, on the apex of which are several black ink-like spots. Surface of shell smoothly granular and glossy. They measure 36-38 mm. by 24-25. A clutch of five of another variety frequently met with has a ground-colour of pale

BLACK-THROATED BUTCHER-BIRD.

greyish-green, spotted and blotched with light to dark olive-brown and dull slate, confined chiefly to the larger end of each egg, and scattered here and there are also a few black ink-like markings. Surface of shell smoothly granular and glossy. They measure 36 mm. by 25.

Nest. A neat, shallow cup-shaped structure, composed of thin dead twigs and sticks, and lined with small roots and grasses; frequently the lining is a well-matted mass of rootlets. Dimensions of nest across over all is from 8 to 11 inches. Egg cavity from 4 to nearly 5 inches across by 2 to 2½ inches deep. The nest is usually placed in a forest tree from 12 to 40 feet or more from the ground, generally in the upright forks; saplings are often used for the purpose.

Breeding season. August to December or January.

GOULD recorded his observations thus: "The Black-throated Crow-Shrike finds a natural asylum in New South Wales, the only one of the Australian colonies in which it has yet been found, and where it is by no means rare, although the situations it affects renders it somewhat local; it is a stationary species, breeding in all parts of the country suitable to its habits and mode of life; districts of rich land known as apple-tree flats, and low open undulating hills studded with large trees, are the kinds of districts to which it particularly resorts; hence the cow pastures at Camden, the fine park-like estate of Charles Throsby, Esq., at Bong-bong, and the entire district of the Upper Hunter are among the localities in which it may always be found. It is usually seen in pairs, and, from its active habits and pied plumage, forms a conspicuous object among the trees, the lower and out-spreading branches of which are much more frequented by it than the higher ones; from these lower branches it often descends to the ground in search of insects and small lizards, which, however, form but a portion of its food, for, as its powerful and strongly hooked bill would lead us to infer, prey of a more formidable kind is often resorted to; its sanguinary disposition, in fact, leads it to feed on young birds, mice, and other small quadrupeds, which it tears piecemeal and devours on the spot."

Capt. S. A. White has written that he met with this species all along the water courses in the interior.

Macgillivray has recorded: "Common throughout the Gulf country. A fawn-coloured bird was frequently noted, probably one of the plumage changes towards maturity. Stomach contents, beetles and grasshoppers." . . . "Was fairly plentiful in the forest country bordering the Archer River."

This seems the only note of a fawn-coloured form, which appears to be equivalent to the well ventilated case of *Cracticus rufescens* De Vis, and is important from a phylogenetic viewpoint.

Mr. Thos. P. Austin writes: "At one time there was always a few pairs of *Cracticus nigrigularis* about this district, Cobbora, New South Wales, but I

THE BIRDS OF AUSTRALIA.

have not seen one since the spring of 1907. It frequents open forests and 'ringbarked' country, and is invariably met with in pairs. Their clear flute-like song is most melodious, usually uttered in the early morn, and I know of few birds whose notes penetrate through the forests to such a distance as the present species, and still fewer I would rather listen to. It is an exceptionally shy bird, seldom allowing of a close approach. The nest is a bowl-shaped structure, irregularly formed of twigs, lined with roots and dry grass. The clutch is just as often three as four. They are exceptionally fond of raw meat, and a pair of birds will often take up their abode about a homestead, and will spend most of their time at the killing yard, and if there is an opening large enough for them to get into the meat house, they are sure to find it, and will work their way in to pick scraps of meat and fat from the chopping block."

W. G. and R. C. Harvey have written: "Judging by our observations all over the district, and from reliable information gleaned from others, this fine songster is now a rare bird in the Mackay district. The disastrous cyclone of January, 1918, and the floods which accompanied it, combined to almost exterminate the Butcher-Birds. How bold these birds were before the cyclone may be gathered from the fact that the one depicted in the photograph would follow us for hundreds of yards during the breeding season for the sake of persecuting our dog which had, in some unaccountable way, incurred its displeasure. The cyclone experience has so humbled the few survivors that they are now as correspondingly shy and retiring as once they were audacious. The two sole survivors in our locality are seldom seen or heard now, and are certainly more esteemed on that account, for distance lends enchantment to more things than a view."

Gould described the North-western bird as a new species under the name *Cracticus picatus*, later writing. "This is in every respect a miniature representative of the *Cracticus nigrogularis* of New South Wales; it must, however, be regarded as a distinct species, for its much more diminutive size will warrant such a conclusion by every ornithologist who compares them. Gilbert, who found it at Port Essington in considerable abundance, states that it is an extremely shy and wary bird, inhabiting the most secluded parts of the forest, and is as frequently seen searching for its food on the ground as among the topmost branches of the highest trees. In its habits, manners, mode of flight, and in its loud, discordant, organ-pipe-like voice, it closely resembles the other members of the genus. It is usually seen in pairs, or in small families of four or five. Its nest is built of sticks in the upright fork of a thickly foliaged tree, at about thirty or forty feet from the ground. The stomach is muscular, and the food consists of insects of various kinds, but principally of coleoptera."

BLACK-THROATED BUTCHER-BIRD.

Mr. J. P. Rogers has written me : " At Marngle Creek a few birds came near the camp, but were decidedly rare. At Mungi very few were seen ; these birds are usually found in small parties numbering up to five or six birds. Are usually found in patches of large timber and are often fairly numerous in the belts of bloodwood (a species of *Eucalyptus*) which are found near the base of the Ranges. Even the largest trees in this district are not very large ; I doubt if many would reach 100 feet, so when I speak of large timber it is only in comparison to other trees in this district. Melville Island. Nov. 20, 1911. Cooper's Camp. This species frequents the forest country and is usually to be found on some ridges about a mile north-east of my camp: Is not very numerous and is rather wild ; usually found in small parties. Jan. 13, 1912. 10 miles S.E. of Snake Bay. Not many seen in this locality. Feb. 1, 1912. Back again at Cooper's Camp, this species is still here in small parties in the forest."

Mr. Tom Carter has sent me a long note : " The Black-throated Butcher-Bird (*C. nigrigularis*) is given in your 1912 'List' as occurring generally in West Australia. It occurs in the North-west and Mid-west, but was never observed in the South-west, and apparently is not found there. I have seen them at various localities on the northern part of the Midland Railway and at Mullewa on the Murchison railway, also on the Gascoyne and Minilya Rivers, the Lyndon River and inland from Point Cloates on the Cardabia Creek. Many settlers do not distinguish this species from *Gymnorhina*. The note is a beautiful, rich flute-like one, and it was some years before I succeeded in shooting one of the birds and found out the producer of such a fine song, because the birds were not common on the Minilya River, and did not occur within forty miles of Point Cloates. They are also usually wild and wary, but occasionally an odd bird was seen feeding about my sheep yards on the Cardabia Creek, after lamb-tailing. On July 19, 1900, I camped in a patch of Mallee scrub near the Cardabia, where I had previously heard the notes of the bird that had puzzled me, while driving through to my inland run. There was a good moon, and one of the birds began its song about 2 a.m. and continued it, at intervals, until daybreak, when my native boy and self had breakfast, and started out in the patch of light timber. The bird kept singing ahead of us about two hundred yards away as we walked along, and after walking after it for some hours, we were returning to camp for dinner, when we saw two black and white birds fiercely attacking a crow. On approaching them, a bulky nest was seen in one of the trees, about fifteen feet above the ground. I sat down awaiting the return of the owners. The *male* returned first, and settled in the nest on the eggs. I shot it, and found that its back was *grey*, sex determined by dissection. A few minutes afterwards the female returned, and was also

THE BIRDS OF AUSTRALIA.

secured. She was in full black and white plumage. The nest was large, made of stout twigs and lined with spinfex and grass. The cavity was deep, and contained *four* eggs. I may mention that in full view of this nest in another tree, fifteen yards distant, was a nest containing eggs of *Myzantha lutea*. Sept. 4, 1911. Secured a male bird, eating a lizard, at daybreak, on the Cardabia Creek. Sept. 5, 1911. Shot a breeding male, on Lyndon River. At both the latter occurrences the birds were heard singing in the small hours of the morning. *It was full moon Sept. 8.* I never saw this species in the vicinity of Carnarvon (port of Gascoyne River), they seem to like more inland places. They were quite common about Mullewa. These birds are valued as cage birds on account of their song."

Milligan has written from Yandanooke district, 260 miles north of Perth : " This handsome Butcher-Bird was numerous in the ' red ' lands, but principally in the beautiful white-limbed ' flooded gums ' (*Eucalyptus rostrata*). His notes suggest the vastness of the Australian bush and continent. At dawn his clear cornet-like notes ring out far above the great chorus of bird-song. They are various, and some impossible of translation, but his dawn notes resemble the following : ' Toll-de-lol-fah ' (the last note long drawn out and of liquid sweetness) ; then twice and quickly repeated in a lower key ' You chatterbox ' ; then in a higher key and with very full, rounded notes, and twice repeated ' Sweet after forty.' "

Whitlock, about the birds of the Pilbarra Goldfield, wrote : " This species haunted similar country to the Long-billed Magpie, and, if anything, it was an earlier riser than the latter, its musical notes being heard often before the faintest sign of dawn. In its habits, too, it much resembles *G. longirostris*. It is usually found in isolated pairs ; and to secure nests it was necessary to traverse the rocky gullies of the ranges from end to end, where, frequently in some isolated and stunted gum, the neat and often inconspicuous nest was found."

Crossman, from Cumminin, 200 miles due east of Perth, wrote : " This bird is fairly plentiful, and its magnificent notes may be often heard. Its alarm note is of a chattering kind, but does not seem so harsh as that of the common bird."

Hill recorded from Kimberley, North-west Australia : " Fairly numerous. Examination of crop contents proved that these birds live almost entirely on caterpillars and locusts."

Mr. Edwin Ashby writes : " I have collected this bird on the goldfields and at Watheroo in West Australia and had many opportunities of listening to their remarkable vocal powers. The run of liquid, rippling flute-like notes, produced by this bird is a masterpiece of vocal song, that includes the flute-like notes of the *Gymnorhina* with a special series of its own added. It is a

BLACK-THROATED BUTCHER-BIRD.

very pugnacious bird; in one of the camps on the gold fields (Western Australia) I watched a wild bird of this species attack a tame *nigrogularis* through the bars of a cage, the floor of the cage was freely besprinkled with blood and both birds seemed badly mauled. It was necessary to drive away the intruder before more damage was done."

Gould separated the Port Essington bird as a distinct species on account of its smaller size only, and this was admitted for many years. When Hartert reviewed a collection of North-west Australian birds he had before him two females, one from Nullagine, the other from the Coongan River, which he referred to *Cracticus nigrogularis nigrogularis*, observing: "These specimens belong to the larger form, *C. n. nigrogularis*, the distribution of which is peculiar, as it seems to occur in New South Wales and throughout West Australia and is only replaced by the smaller *C. n. picatus* in the Northern Territory and in the northern portions of Queensland. Birds collected by Mr. Tom Carter at Point Cloates are distinctly of the large form, while I consider all the North Queensland examples from Cedar Bay, Cooktown, etc., to be typical *picatus*."

He then ranged a series from the Northern Territory under the name *C. n. picatus*.

The preparation of my "Reference List" necessitated the examination of a good series of this form and I then admitted five subspecies:

Cracticus nigrogularis nigrogularis (Gould).

New South Wales.

Cracticus nigrogularis inkermani Mathews.

"Differs from *C. n. nigrogularis* in its smaller size; wing 166 mm. to 173 mm.; typical wing 180 mm. Inkerman, Queensland."

Queensland.

Cracticus nigrogularis mellori Mathews.

"Differs from *C. n. nigrogularis* in being larger; wing 186 mm. South Australia."

Victoria, South Australia.

Cracticus nigrogularis kalgoorli Mathews.

"Differs from *C. n. nigrogularis* in its longer bill; 48 mm. Kalgoorlie, West Australia."

West Australia.

Cracticus nigrogularis picatus Gould.

Northern Territory, North-west Australia.

I later added

Cracticus nigrogularis tormenti.

"Differs from *C. n. picatus* (the Northern Territory form) in having a

THE BIRDS OF AUSTRALIA.

stouter and longer bill and longer wing. Napier Broome Bay, North-west Australia." North-west Australia and these six I retained in my 1913 "List."

I have since named

Cracticus nigrogularis territorii.

"Differs from *C. n. picata* in its smaller size and narrower black band on the back. Mount Shoobridge, Northern Territory."

Quite recently Campbell examined two skins from the Upper Coongan River which he stated appeared identical with the eastern bird, except that the ends of the primaries and secondaries may be more brownish. The intensity of the black portions of the plumage varies in individuals, and so does the length of the bill. He then quoted Hartert's note above given and added: "Apart from these two tolerably clear types, Mathews' numerous 'subs' for this species are confusing and conflicting to a student. In addition to the smaller northern form, *picatus*, he debits us with two other, *tormenti* and *territorii*, both practically from the type region of the first mentioned, North Australia."

A few months later he reviewed birds from the King River and wrote: "Two ♀ ♀. Similar to North-west examples, also to those from MacArthur River, but the black portions of the plumage are not so intense, nor the white parts so pure; tail and primaries are also browner. Length 294-305, wing 150-155, culmen 30-35, tarsus 30-32 mm."

G. F. and H. E. Hill had recorded the measurements of a series from Napier Broome Bay, the type locality of my *tormenti*, which read:

♂	Total length	320-332,	wing	151-161,	tarsus	31-34,	bill	40-46,	tail	118-131 mm.
♀		305-317		150-155		30-31.5		38-41		106-120

It will be seen from these figures that my contention that the latter bird had a long bill was justified, and when series of the other named forms are examined they will also prove stable.

It is somewhat curious that the bird criticised by Hartert and also by Campbell from the Upper Coongan River and Point Cloates, whence Tom Carter also recognised its distinction, has never been named.

I have named it

Cracticus nigrogularis coongani

pointing out the features emphasized by these writers.

GENUS—BULESTES.

BULESTES Cabanis, Mus. Heine, Vol. I., p. 66 (after

October 23rd), 1851. Type (by monotypy) *Lanius torquatus* Latham.

SMALL Cracticine birds with comparatively slender bills, rounded wing, long tail and rather slender legs and feet.

The bill is somewhat slender, the culmen rounded and with little basal expansion, the anterior portion rather strongly laterally compressed, the tip vertically sharply hooked as in preceding genus; the under mandible nearly as deep as the upper and the conjoined depth at base is greater than the width; succeeding the deep notch behind the descending tip the edges of the mandibles are straight; the nostrils appear as linear slits about midway between the culmen and the mandible edge, near the base of the bill, but clearly separated, there being no approaching feathering nor is there any appreciable nasal groove only an indistinct impression; there are a few nasal bristles not reaching the nostrils, but strong rictal bristles can be seen; there is a triangular interramal space, feathered, and less than one-third the length of the mandible, and the gonys is a little upcurved and semikeeled.

The wing has the fourth primary the longest, the third and fifth a little shorter and subequal, the sixth less, the second still shorter and subequal with the seventh, the first being half the second in length and much shorter than the secondaries.

The tail is long and square.

The legs are rather slender, the feet also comparatively delicate, the claws long and sharp; the tarsus is generally seen as booted, but sometimes appears as obscurely scutellate; the hind-toe is equal in length to the inner, but stouter, and the hind-claw is well curved, long and stout; the inner is less than the outer, which is almost as long as the middle toe, but the claw is shorter; the hind-toe and claw is little shorter than the middle toe and claw.

The immature shows the bill to begin as nearly straight with a slightly hooked tip, and the nostrils as linear slits with horny operculum in a definite nasal groove with nasal bristles projecting and obscuring the nostrils.

Key to the Species

Larger, lores white
Smaller, lores black

B. torquatus
B. mentalis

BULESTES TORQUATUS.

COLLARED BUTCHER-BIRD.

(PLATE 486.)

LANIUS TORQUATUS Latham, Index Ornith. Suppl., p. xviii., after May, 1801 : New South Wales.

Lanius torquatus Latham, Index Ornith. Suppl., p. xviii., 1801.

Clouded Shrike Latham, Gen. Synops. Birds, Suppl. II., p. 73, 1801.

Barita destructor Temminck and Laugier, Planch. Color. d'Ois., 46^e livr. (Vol. III., pl. 273), May 22nd, 1824 : New South Wales.

Vanga australis Stephens in Shaw's Gen. Zool., Vol. XIII., pt. II., p. 150 (end), 1826 : New South Wales.

Vanga cinerea Gould, Synops. Birds Austr., pt. I., pl. (2), Jan., 1837 : Van Diemen's Land=Tasmania ; *id.*, Proc Zool. Soc. (Lond.), 1636, p. 143, June, 1837.

Cracticus argenteus Gould, Proc. Zool. Soc. (Lond.), 1840, p. 126, July, 1841 : North-west Coast of Australia=Port Essington, Northern Territory ; *id.*, Birds Austr., pt. XXXIII. (Vol. II., pl. 51), Dec. 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 182, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 99, 1883 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 31, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 304, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 21, 1906 ; Mathews, Handl. Birds Austral., p. 84, 1908 ; Le Souëf, Emu, Vol. VIII., p. 62, 1908 ; H. L. White, *ib.*, Vol. XVI., p. 225, 1917 ; Campbell, *ib.*, Vol. XVIII., p. 188, 1919 ; *id.*, *ib.*, Vol. XXI., p. 189, 1922.

Cracticus torquatus G. R. Gray, Ann. Mag. Nat. Hist., Vol. XI., p. 189, 1843 ; Gould, Handb. Birds Austr., Vol. I., p. 184, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; *id.*, Tab. List Austr. Birds, p. 4, 1888 ; Thompson, Emu, Vol. XXII., p. 138, 1922.

Cracticus cinereus Gray, Genera Birds, Vol. I., p. 300, 1845 ; Gould, Introd. Birds Austral., 8vo ed., p. 35, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 186, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 101, 1883 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 32, 1899 ; Legge, Emu, Vol. I., p. 82, 1902 (Tas.) ; Littler, *ib.*, Vol. III., p. 85, 1903 (Tas.) ; *id.*, *ib.*, p. 214, 1904 (Tas.) ; A. G. Campbell, *ib.*, Vol. IV., pp. 112, 116, 122, 1905



H. Grönvold, del.

Witherby & Co.

BULESTES TORQUATUS.
(COLLARED BUTCHER-BIRD).

COLLARED BUTCHER-BIRD.

(Vic. and Tas.) ; McClymont, *ib.*, Vol. V., p. 161, 1906 (Tas.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 13, 1906 ; Mellor, Emu, Vol. VI., p. 163, 1907 (Tas.) ; Dove, *ib.*, Vol. VII., p. 90, 1907 ; Legge, *ib.*, p. 152, 1908 ; Mathews, Handl. Birds Austral., p. 84, 1908 ; Littler, Handb. Birds Tasm., p. 48, 1910 ; Dove, Emu, Vol. XV., p. 193, 1916.

Cracticus destructor Gould, Birds Austr., pt. xxxi. (Vol. II., pl. 52), June 1st, 1848 ; Diggles, Ornith., pt. xix., 1868 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 100, 1883 ; Hall, Key Birds Austr., p. 32, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 304, 1901 ; Hill, Emu, Vol. II., p. 162, 1903 (Vic.) ; Milligan, *ib.*, Vol. III., pp. 17-22, 1903 (S.W.A.) ; Berney, *ib.*, Vol. V., p. 74, 1905 (N.Q.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 9, 1906 ; Austin, Emu, Vol. VII., p. 30, 1907 (N.S.W.) ; Berney, *ib.*, p. 80 (Food) ; Mathews, Handl. Birds Austral., p. 84, 1908 ; Howe, Emu, Vol. VIII., pp. 133, 134, 137, 1909 (Vic.) ; E. Barnard, *ib.*, Vol. XI., p. 125, 1911 (Q.) ; Cleland, *ib.*, Vol. XII., p. 12, 1912 (Food) ; Wilson, *ib.*, p. 37 (Vic.) ; Stone, *ib.*, p. 115 (Vic.) ; Chandler, *ib.*, Vol. XIII., p. 42, 1913 (Vic.) ; S. A. White, *ib.*, p. 129, 1914 (S.A.) ; Cheney, Emu, Vol. XIV., p. 213, 1915 (Vic.) ; Chandler, *ib.*, Vol. XV., p. 51, 1915 (Vic.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 38, 1917 (N.Q.) ; Cleland, *ib.*, Vol. XVIII., p. 283, 1919 (N.S.W.) ; Le Souëf and Macpherson, *ib.*, Vol. XX., p. 91, 1920 (N.S.W.).

Cracticus leucopterus Gould, Introd. Birds Austr., 8vo ed., p. 35, August 1st, 1848 : Western Australia ; *id.*, Handb. Birds Austr., Vol. I., p. 187, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 98, 1883 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 31, 1899 ; Campbell, Nests Eggs Austr. Birds, Vol. I., p. 303, 1901 ; Milligan, Emu, Vol. IV., p. 9, 1904 (W.A.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 12, 1906 ; Mathews, Handl. Birds Austral., p. 84, 1908 ; Gibson, Emu, Vol. IX., p. 74, 1909 (W.A.) ; Crossman, *ib.*, p. 89 (W.A.) ; Whitlock, *ib.*, p. 207, 1910 (W.A.) ; Carter, *ib.*, Vol. X., p. 298, 1911 (N.W.A.) ; Orton and Sandland, *ib.*, Vol. XIII., p. 80, 1913 ; S. A. White, *ib.*, Vol. XX., p. 129, 1921 ; Mellor, *ib.*, p. 139 ; Alexander, *ib.*, p. 167.

Bulestes torquatus Cabanis, Mus. Heine, Vol. I., p. 66, 1851.

Bulestes cinereus Cabanis, *ib.*, note.

Bulestes leucopterus Cabanis, *ib.*, p. 67.

Cracticus destructor subsp. *cinereus* Gadow, Cat. Birds Brit. Mus., Vol. VIII., p. 101, 1883 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 305, 1901.

Cracticus torquatus torquatus Mathews, Nov. Zool., Vol. XVIII., p. 374, 1912.

Cracticus torquatus olindus Mathews, *ib.*, Jan. 31st, 1912 ; *id.*, Austral Av. Rec., Vol. 2, p. 60, 1912 : (Olinda), Victoria.

Cracticus torquatus ethelæ Mathews, Nov. Zool., Vol. XVIII., p. 375, 1912 : Eyre's Peninsula, South Australia ; *id.*, Austral Av. Rec., Vol. 2, p. 61, 1914.

Cracticus torquatus cinereus Mathews, Nov. Zool., Vol. XVIII., p. 375, 1912.

Cracticus torquatus leucopterus Mathews, *ib.*

Cracticus torquatus argenteus Mathews, *ib.*

THE BIRDS OF AUSTRALIA.

Cracticus torquatus colletti Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 46, April 2nd, 1912: (Mary River) Northern Territory.

Cracticus torquatus colei Mathews, *ib.*, Vol. I., pt. 5, p. 119: Dec. 24th, 1912: Mallee, Victoria.

Bulestes torquatus torquatus Mathews, List Birds Austr., p. 244, 1913.

Bulestes torquatus olindus Mathews, *ib.*, p. 244; Belcher, Birds Geelong, p. 306, 1914.

Bulestes torquatus colei Mathews, List Birds Austr., p. 244, 1913.

Bulestes torquatus cinereus Mathews, *ib.*

Bulestes torquatus ethelæ Mathews, *ib.*; S. A. White, Emu, Vol. XVI., p. 14, 1916 (S.A.); *id.*, *ib.*, Vol. XVIII., p. 198, 1919 (S.A.).

Bulestes torquatus leucopterus Mathews, List Birds Austr., p. 244, 1913.

Bulestes torquatus argenteus Mathews, *ib.*

DISTRIBUTION. Australia generally and Tasmania.

Adult male. Top of head, sides of face, nape, and hind-neck black; sides of neck white; entire back, scapulars and upper wing-coverts pale slate-grey with dark shaft-lines to the feathers; the inner greater wing-coverts have more or less white on the outer webs; bastard-wing, primary-coverts and flight-quills black, paler and inclining to white on the inner webs, some of the secondary quills broadly margined with white; upper tail-coverts white; tail black, tipped with white on the lateral feathers; lores whitish with black hair-like tips to the feathers; rictal-bristles black; chin cream-white with hair-like tips to the feathers; throat, breast, abdomen, sides of body, and thighs greyish with dusky bases to the feathers; under tail-coverts, axillaries and under wing-coverts white; under-surface of flight-quills grey with whitish margins becoming darker towards the terminal portion of the wing; lower aspect of the tail similar to its upper-surface. Eyes dark, feet black, bill black at the tip, base bright bluish horn-colour. Total length 295 mm.; culmen 37, wing 147, tail 115, tarsus 32. Figured. Collected at Mt. Dutton, West Coast of Eyre's Peninsula, on the 20th of August, 1911, and is the type of *C. t. ethelæ*.

Adult female. Somewhat like the immature described.

Adult. Crown of head and sides of face black; sides of neck black with white bases to the feathers; mantle also black with grey bases to the feathers, becoming paler on the upper back, where the feathers are fringed with dark olive; lower back, rump, and scapulars dark slate-grey; lesser and median upper wing-coverts similar to the upper-back; inner greater coverts more or less greyish-white on the outer webs; outer edge of wing white; bastard-wing, primary-coverts and flight-quills blackish-brown, the inner webs of the last white at the base, which increases in extent on the inner secondaries, some of which are fringed with white on the outer webs; upper tail-coverts white; tail blackish-brown with a large blotch of white on the inner webs at the tips of the lateral feathers; lores and feathers below the eye white with black hair-like tips to the feathers; rictal-bristles black with white bases; chin white with black hair-like tips to the feathers; throat and fore-neck also white; breast, abdomen, and sides of body pale grey; thighs, vent and under tail-coverts white like the axillaries, under wing-coverts, and inner margins of flight-quills below, remainder of quill-lining greyish-brown; lower aspect of tail greyish on the outer feathers, which are white at the tips on the inner webs, and blackish on the central ones with white at the tips of the inner webs. Total length 288 mm.; culmen 35, wing 140, tail 106, tarsus 32. Figured. Collected at Olinda, Victoria, on the 9th of May, 1908, and is the type of *Cracticus torquatus olindus*.

COLLARED BUTCHER-BIRD.

Adult male. General colour of the upper-surface dark soot-brown including the top of the head, back and wings; darker on the head, where the feathers are more or less abraded, and becoming paler and inclining to dark olive-brown on the lower back and rump; sides of the neck white, which colour encroaches on the hind-neck, where it forms a slightly indicated collar; outer edge of wing dull white intermixed with brown; inner greater upper wing-coverts like the back with broad white shaft-lines; flight-quills margined with white on the inner webs which increases in extent on the secondaries, some of which are fringed with white on the outer webs; some of the long upper tail-coverts tipped with greyish-white; tail, somewhat abraded, dark brown with white tips to the inner webs of the lateral feathers; sides of the face blackish-brown with pale shaft-streaks, and whitish tips to the feathers; rictal-bristles black; lores and chin whitish-grey with black hair-like tips to the feathers; throat, breast, abdomen, and sides of the body whitish-grey with lead-grey bases to the feathers; thighs dusky-brown; under tail-coverts white tinged with yellow; axillaries whitish, marked with grey; under wing-coverts dull white marked with pale brown; under-surface of flight-quills glistening-brown with silver-grey margins; lower aspect of tail pale greyish-brown, whitish on the under-surface of the feathers. Eyes grey, feet slate, bill black. Total length 265 mm.; culmen 36, wing 135, tail 108, tarsus 32. Figured. Collected at Bayswater, Victoria, on the 12th of November, 1910.

Immature. General colour of the upper-surface olive-green with pale shaft-streaks to the feathers including the crown of the head, sides of face, back, and scapulars; marginal upper wing-coverts orange-rufous; remainder of the lesser series dark brown edged with olive, median and greater coverts similar with buff markings on some of the inner greater series; bastard-wing, primary-coverts, and flight-quills hair-brown with pale outer edges, inner margins of quills buffy-white; upper tail-coverts buffy-white; tail similar in colour to the flight-quills with pale tips to the inner webs of the lateral feathers; lores cream-white with hair-like tips to the feathers; rictal-bristles black with pale bases; chin dull white with hair-like tips to the feathers; throat cream-white; sides of neck cream-white—with olive-brown tips to the feathers; breast, abdomen, and sides of body cream-white barred with pale grey, more profusely on the last; thighs olive-brown; under tail-coverts cream-white; axillaries and under wing-coverts cream-buff; under-surface of flight-quills pale greyish-brown margined with cinnamon-buff; lower aspect of tail similar but paler. Collected in South Australia.

Eggs. In the south-western form the eggs vary somewhat in their colouring and general disposition of the markings, as well as in size and shape. A rather typical clutch of four eggs has a ground-colour of a light brown well marked with spots of rusty-brown and pale purplish-brown, and scattered here and there are a few black ink-like spots. Surface of shell very smooth and glossy. The clutch measures 30–31 mm. by 22. Another clutch of four eggs of a different variety has a ground-colour of pale greenish-grey, well spotted, chiefly about the larger end, with reddish-brown and purplish-brown markings. Surface of shell smooth and glossy. The clutch measures 32 mm. by 23.

Eggs. In the Northern Territory form (*argenteus*) the clutch is three eggs, long oval in shape, ground-colour of a pale greyish-green, spotted with burnt sienna, slightly more numerous at the larger end. They measure 32–33 mm. by 20–21.

Nest was placed in the forked branch of a tree about 20 feet from the ground, and composed of twigs lined with fine rootlets.

Eggs. In the typical form the eggs vary very much in the general colour and disposition of the markings, as well as in their shape and size. They vary from three to five for a clutch, though four are most usually found. A clutch of four, of a variety frequently

THE BIRDS OF AUSTRALIA.

met with, is rather roundish oval in shape; ground-colour pale brown, spotted with reddish-brown and dull slate, the markings being confined chiefly to the larger end of each egg. A few very blackish spots are scattered here and there on each egg. Surface of shell smooth and rather glossy. They measure 20 mm. by 22. Another clutch of four has a pale greenish-grey ground-colour, spotted and speckled, chiefly at the larger end, with reddish-brown and dull slate. Surface of shell smooth and glossy. The clutch measures 29 mm. by 23.

Nest. A rather neat, shallow cup-shaped structure, composed of dead twigs, roots, etc., and lined with dead grass or rootlets. Dimensions over all from 6 to 9, and sometimes 11 inches; it all depends on the situation of the nest. Egg cavity $3\frac{1}{2}$ to $4\frac{1}{2}$ inches across by 2 to $2\frac{1}{2}$ inches in depth. Usually placed in the upright forked branches of a tree, at heights from 10 to 40 feet or more from ground.

Eggs. In the Tasmanian form three to four eggs form the clutch, and vary in colouring, shape, and size. A rather typical clutch of four has a pale greenish-grey ground-colour, spotted and blotched with purplish-brown and reddish-brown and confined chiefly to the larger end of each egg. Surface of shell smooth and glossy. The clutch measures 32-34 mm. by 23-25.

Breeding season. August to January.

APPARENTLY the first field-note is that recorded by Vigors and Horsfield, who wrote: "Mr. Caley thus observes on this species: '*Butcher-bird*. This bird used frequently to come into some *green wattle trees* near my house, and in wet weather was very noisy; from which circumstance it obtained the name of *Rain-bird*. It appeared to be a solitary bird, or at least to associate only with its mate.'"

Gould wrote: "This bird is a permanent resident in New South Wales and South Australia, where it inhabits the margins of the bushy lands near the coast, the sides of hills, and the belts of trees which occur in the more open parts of the country; in fact, I scarcely know of any bird so generally dispersed. Its presence is at all times betrayed by its extraordinary note, a jumble of discordant sounds impossible to be described. It is nearly always on the trees, where it sits motionless on some dead or exposed branch whence it can survey all around, and particularly the surface of the ground beneath, to which it makes perpendicular descents to secure any large insect or lizard that may attract its sharp and penetrating eye; it usually returns to the same branch to devour what it has captured, but at times will resort to other trees and impale its victim after the manner of the true Shrikes; mice, small birds and large *Phasmicæ* come within the list of its ordinary diet. September and the three following months constitute the period of incubation."

Captain S. A. White's notes read: "A very widely distributed bird. They were very rare in the far north-west of South Australia and scarce in the Central regions, generally in the mulga scrubs. They are rather numerous in some of the Mallee scrubs and are found along the coast line. They possess a most

COLLARED BUTCHER-BIRD.

pleasing voice. Although they take young birds from the nest occasionally, yet they do a great deal of good as an insect destroyer."

Mr. J. W. Mellor has written me: "The collared Crow-Shrike, or Butcher-Bird as he is more familiarly called, is found in all parts of South Australia, and I have come across it in Victoria, New South Wales, and lower Queensland. It is known as the Butcher-Bird on account of its habit of catching large insects such as grasshoppers, mantis and beetles, and also small lizards, etc., impaling them on thorns, etc., from which position the bird takes them when it is hungry; they will use barbed wire fences for this purpose, if suitable thorns in the trees and bushes are not available. The bird has a very loud call; at times this is harsh, but mostly it is clear and melodious, and can be heard a long way off in its scrub retreat, for this bird prefers the broad expanse of mallee scrub country rather than the forests of large trees. The breeding months are generally from August to November and December. They are very quarrelsome with other birds about the neighbourhood of their nest, and there are many squabbles between larger birds and themselves, while smaller intruders are often pursued and sometimes killed and hung up in the Butcher-Birds' 'larder.'"

Mr. F. E. Howe has written: "The rollicking song of this bird is often heard and generally in the early part of the day. The food consists of worms, grubs, beetles, small birds and rodents. I saw a 'storehouse' of this bird at Ringwood many years ago. In a small dead wattle tree on the bank of a creek the remains of an *Acanthiza chrysorrhoa* and a Yellow-breasted Robin, not long killed, were suspended by their necks and on the ground beneath were the remains of black beetles. The angry, laughing, jumbling notes of the birds were heard in the vicinity and an old nest was found close by. The nests are usually placed in a sapling and are to be found from September to December. Young were seen at Ferntree Gully No. 8; they were just hatched and were blind and featherless and the gape and mouth were yellow. On the same day we noticed young, well fledged, flying about with the parents."

Chandler recorded of the Mallee bird: "Another bird whose notes differ slightly from those of the southern form. All the nests noted were built in Murray pines."

Mr. Thos. P. Austin's notes read: "Although *Cracticus destructor* is to be found in scattered pairs throughout the district (Cobbora, New South Wales), both in scrubs and open forests, it is by no means plentiful, but once they take up their abode in any favourable locality, they remain and breed there year after year. They are rather shy, being more often heard than seen. It would be quite impossible to describe their cheerful melodious song. When breeding the sitting bird will slip quickly off the nest at the least sound of

THE BIRDS OF AUSTRALIA.

danger, and fly about a couple of hundred yards away, when the notes of both birds will then be heard. They are usually met with near the ground, always watching for some insect or other food. Pairs often take up their quarters near station homesteads, where they become very tame, gathering most of their food in the garden or at the slaughtering house, picking particles of meat and fat off sheep skins, etc. For nesting purposes they invariably choose a rather small tree, or a low hanging branch of a large tree. The nest is an open bowl-shaped structure, irregularly formed of twigs, the inside being neat but rather shallow, lined with roots and dry grass stems, sometimes the long thin wire-like leaves of various species of native oak trees. The clutch is usually four, and all the nests I have examined containing eggs, have been during September and October. Although I have never actually seen this species attack other birds I have frequently been told of them killing caged Canaries. One pair has taken up its abode about my house, and many small birds appear to be in great dread of them, while about my garden I frequently hear the danger warning notes of some small bird, and upon looking up, expecting to see a Goshawk or a Falcon, I usually see a Butcher-Bird on the wing."

Campbell and Barnard record: "This common Butcher-Bird was found breeding on the tableland (at Cardwell, Queensland). Broadbent appears to have missed it, while Ramsay stated it was the same as the New South Wales species. The song of this Butcher-Bird is five or six flute-like notes in distinct polka time."

Mr. Edwin Ashby writes: "*Cracticus (destructor) torquatus*. While this bird is a very rare visitant to Blackwood in South Australia, it is a very common bird in every part of that state outside the higher ranges of the Adelaide hills (not lofty ranges). The fact of its absence from the wet range country in South Australia and its occurrence in such numbers in the wet Gippsland country in Victoria seems quite inexplicable. In the Mallee country of South Australia it is a very common bird and is very useful in destroying mice.

"The song of this bird, altho' not equal to *C. nigrogularis*, is probably unsurpassed by any other bird; it consists of a series of clear flute-like notes a little higher in tone than the piping of members of the genus *Gymnorhina*, but consists of a greater range of notes. The notes are uttered with a sufficient volume of sound to make them easily heard a quarter of a mile away and probably considerably further. The Lyre Bird (*Menura victoriæ*) reproduces the rippling notes of this bird to perfection and in my experience more often than the song of any other denizen of the Gippsland forest.

"Subsp. *C. cinereus*. The Tasmanian Butcher-Bird usually known in that island as the Whistling Jackass. In Tasmania the charming notes of

COLLARED BUTCHER-BIRD.

this bird are one of the commonest as well as the most pleasing of the sounds of the bush. Its habits and song are similar to those of the mainland form.

"*C. leucopterus*. I have noted this bird as fairly common in all parts of West Australia I have visited. It is more numerous than *nigrogularis* and ranges into the wet country of the south-west of that state, whereas I have only noted *nigrogularis* in the dryer parts. In all respects its habits and song or whistle are similar to the South Australian and Victorian birds."

Mr. E. J. Christian's notes read: "This bird is fairly well distributed over the states, but in Tasmania *C. cinereus* takes its place. *C. destructor* is popularly known by four different names, viz., Butcher-Bird, Whistling Jack, Collared Crow-Shrike and Derwent Jackass. *C. destructor* is found chiefly in Victoria in the marshier parts, but up here where it is very much drier (the average rainfall for these parts is 18 in.) the family is represented by *C. nigrogularis*. The habits of this bird are very similar to those of the former, and in my opinion the former has the better voice. They are useful birds, devouring many beetles and mice. They are also a terror to small birds, and when his beautiful voice is to be heard the smaller birds in the same timber keep quiet. He is very fond of the Silver Eye (*Z. cærulescens*), which he generally places in a small fork in a branch and eats it at his leisure. I have found *C. nigrogularis* to be very shy, much shyer than *C. destructor*, as I have stood within five yards of the latter listening to him singing, while I found it difficult to get within twenty yards of the former. Again *C. nigrogularis* seems to sing best in the autumn while *C. destructor* seems to be at its best in spring. The notes are very loud and musical. In Tasmania I have heard *C. cinereus* singing at night time, but I have never heard either of the others on the mainland. In the country, canary owners have to be careful or one of these birds will approach the cage and catch the canary by the throat with his long bill, and either drag it to the wires of the cage or wedge it and take it piece by piece. Of course, all Butcher Birds won't; but if one gets very tame, as they will do, and stick near a house, they make good pets and are easily tamed. They are rather pugnacious and I remember once when a friend of mine climbed to a nest of *Acanthiza chrysorrhoa* at the end of a branch with young ones, a pair attacked him and I had to keep throwing sticks at them to keep them from hurting him."

Mr. Frank Littler has written me: "The Grey Butcher-Bird is distributed throughout Tasmania, in some districts more plentiful than in others. It has a longer bill than the mainland form. Its favourite haunts are thickly timbered tracts, where it can find an abundance of both insect and animal life. Its loud discordant notes are often heard round bush dwellings. It eats large insects, mice and small birds. It often impales its victims on long thorns. These

THE BIRDS OF AUSTRALIA.

ladders are usually near its nest. One I saw consisted of two callow nestlings, the remains of a mouse and a number of large beetles. He does not kill them, but impales them alive."

Mr. R. T. Dyott has given me a note: "This bird builds in a small tree or shrub. Their natural song is rather pretty, one of which sounds very like 'You're a terrible boy' repeated two or three times. They are very good whistlers when taught, and make interesting cage pets. They are very destructive among small birds, young chickens and even canaries in cages, coming on to the verandah to attack them and will take young birds out of their nests. When they have young it is quite a common sight to see the skeletons of several small birds hanging by their heads in the forks of branches near their nests, where the parents have hung them to strip off the flesh, for which purpose the hook at the end of their upper mandible is well suited. At such times they will boldly attack any one who approaches their nests; I have had my hat knocked off by them under such circumstances, as they always dart at the head."

Legge has given a good account of this bird in Tasmania, and H. S. Dove and Miss Fletcher have recorded observations in the *Emu* which confirm the above, but little addition has been made, probably on account of the commonness of the bird, as Legge wrote: "The 'Jackass's' loud and melodious call-notes are the most familiar sounds about Tasmanian homesteads, and last into late evening after all birds but the Magpies have retired to roost. It is one of the earliest birds to call in the morning, and is more noisy than the Shrike-Thrush."

Mr. Tom Carter has sent me the following: "In your 1912 'Reference List' you gave the White-winged Butcher-Bird as occurring in West Australia generally. It seems to be confined to the South-west and Mid-central districts. I have seen birds at Kellerberin and Mullewa. The species is commonly distributed through the south-west, where the birds are known as Jackasses. About Broome Hill, the breeding-season is September-October. Oct. 2, 1910. Found a nest in small *dead* Jam tree, twelve feet from the ground, that contained four incubated eggs. The female was sitting, and the male was shy and did not venture within gunshot. The nest was made of twigs loosely put together and lined with grass and roots. November 2nd, 1911. Noted a brood of young leaving the nest. August 21, 1912. Watched a pair of birds building a nest. These birds have a very pleasant, rapidly uttered, bubbling song. They breed while in the immature, brown phase of plumage. They are extremely bold in their habits, and many instances occurred to my knowledge of their killing canaries that were hung in cages on verandahs near Broome Hill. Two canaries belonging to the wife of a neighbouring settler were killed, and when

COLLARED BUTCHER-BIRD.

the lady took one of the injured birds out of the cage and was holding it on her open hand to see if actually dead, the Butcher-Bird alighted on her hand, and tried to carry the canary away. In July, 1912, a young baby was sleeping in a perambulator on the house verandah at Katanning when a Butcher-Bird attacked its face, but was fortunately seen, and driven away before serious damage was done to the child. There is no doubt about this, the mother being Mrs. House, the wife of Doctor House, of *Amytis housei* fame, and she herself told my wife the story. On one occasion, in one of my paddocks at Broome Hill, my attention was attracted by a Black and White Fantail (*R. tricolor*) making a great scolding and fluttering about a Jam tree. Upon going to it, a Butcher-Bird flew out, and looking upwards, I saw another Black and White Fantail suspended above me. I climbed up to it and found that its neck was jammed in the fork of a small branch, where it had evidently been placed by the Butcher-Bird, and most of the feathers had been plucked off its body. It was probably the mate of the Flycatcher."

This bird was apparently first figured in the "Watling" drawings and upon the figure Latham based his *Lanius torquatus*. The description was not recognised at first, and Temminck described it as a new species under the name *Vanga destructor*, and with this specific name, but referred to the genus *Cracticus*, it was figured in his folio work by Gould. Later Gray, upon examination of the "Lambert" drawings, recognised that the name *Lanius torquatus* was given to one of these paintings, easily recognised as the immature of this species. It may be here noted that the "Lambert" drawings were painted by Watling, but the series known as the "Watling" paintings consists of a second set of the same drawings and others added. Gould immediately accepted the usage of Latham's name, but Gadow, with no knowledge of bibliographical work and almost less of ornithological systematics, discarded Latham's name. Gadow would, however, undoubtedly have been justified in his action in this particular case had there not been recourse to the original painting.

The original description reads :

"*L. torquatus*. *L. fuscus subtus albo nebulosus, loris ferrugineis*.

Clouded Shrike, Gen. Syn. Sup. II., p. 73, No. 10.

Habitat in Nova Hollandia ; rostrum cærulescens ; canda elongata.

"Clouded Shrike. Size uncertain ; bill large and blueish ; lore ferrugineous ; head, hindpart of the neck, and sides beneath the eye brown ; back and wings the same ; under parts of the body not like the upper, but clouded with white ; tail longish ; legs dusky. Inhabits New Holland."

It is obvious that no one could determine such a description without

THE BIRDS OF AUSTRALIA.

confirmation, and I have had the painting exactly copied for reproduction in the *Austral Avian Record* for reference.

When Sharpe examined the "Watling" drawings (*Hist. Coll. Nat. Hist. Brit. Mus.*, Vol. II., p. 113, 1906), he recorded:

"No. 36. Hook-billed Shrike, Var. A of Latham, *Gen. Syn. Suppl.* II., p. 70. *Lanius curvirostris*, Lath., *Ind. Orn.*, I. p. 78.

This is a *Cracticus*, and seems to be *C. leucopterus* Gould. It has, of course, nothing to do with *Lanius curvirostris* of Linnæus, which is a *Vanga* from Madagascar. Watling's note is: 'Two-thirds natural size. Native name *Karro-bee-rang*.' "

Sharpe overlooked the fact that this variety had been named by Stephens *Vanga australis*, and that Stephens' name had been cited as a synonym of *C. destructor* in the *Cat. Birds Brit. Mus.* The figure shows a frontal view of the present species and it is obviously the basis of Latham's description which reads: "Hook-billed Shrike, Var. A. This species extends further than generally imagined as it has been found in *New Holland*; it differs in having the whole top of the head black, below the eye on each side; but the base of the bill on the forehead is white."

The colour of the back of *L. curvirostris* is black, whereas the colour of the back of the present series is grey. As there is no view of the back Latham did not know this, and hence his reference of the figure to the Madagascar species which has a similar hooked bill and under-surface.

Stephens simply copied Latham's account and gave the name *Vanga australis* to the variety, probably on geographical grounds, at the same time querying its identity with the recently named *Barita destructor* of Temminck.

Concerning the succeeding "Watling" drawing Sharpe wrote: "This figure is the type of *Lanius torquatus* Lath., which has generally been referred to *Cracticus destructor*. Dr. Gadow considered the description of the Clouded-Shrike to be insufficient for recognition. There can, however, be no doubt that the identification is correct, and *L. torquatus* becomes a synonym of *C. destructor*, as was determined by Gray, Cabanis, and other good ornithologists.

I have previously called attention to the fact that Gould often described as "species" forms which we now regard as "subspecies" only, but also pointed out that Gould fully understood that these "species" were representative forms of really less value, *i.e.* subspecies. I find that under the heading "Genus *Cracticus*" Gould actually wrote: "A great similarity exists between the species inhabiting New South Wales, Tasmania, and Western Australia, but the annexed descriptions, with a due attention to the localities, will obviate all difficulty in determining the species." The words "with a due attention to the localities" draw attention to the fact that the slight

COLLARED BUTCHER-BIRD.

difference observed was apparently governed by the distribution of the supposed "species," that is, that the form was of subspecific value only. Moreover, he did not figure two of the forms, writing in his Introduction

"*Cracticus cinereus* Gould."

"Inhabits Van Diemen's Land, and may be distinguished from *C. destructor* by its much longer bill, and, when fully adult, by its grey back.

Cracticus leucopterus Gould.

"Inhabits Western Australia; is of the same size as *C. destructor*, but has the white mark on the wings much larger and more clearly defined."

It may be remarked that the latter is the first description of the western form.

Gould further wrote of his *C. cinereus*: "By some ornithologists this bird may be considered only a local variety of *C. torquatus*, but I did not fail to notice that the two birds appeared very different in their respective countries, and ornithologists will observe on examination that a marked difference occurs in individuals from Tasmania and New South Wales. I will not, however, affirm that this bird is confined to Tasmania, for I have lately received evidence of its also occurring on the shores of the opposite part of the continent."

Gould had previously described as a distinct species *Cracticus argenteus*, and of this he wrote: "Examples of this species were discovered on the north coast of Australia, both by Sir George Grey and B. Bynoe, Esq., to the latter of whom I am indebted for one of the specimens from which my description was taken. The *Cracticus argenteus* is directly intermediate in size between *C. torquatus* and *C. nigrogularis*, and moreover exhibits a remarkable participation in the colouring of those two species, having the white throat and chest of the former, and the parti-coloured wings, conspicuous white rump, and white-tipped tail of the latter; it differs, however, from both, as well as from all the other members of the genus in the light or silvery-grey colouring of the back, and hence the name *argenteus* has been applied to it."

The Tasmanian form was commonly regarded as only of varietal or subspecific rank, while the West Australian form seemed to have been allowed specific on account of lack of information.

The form *argenteus* had been admitted as valid by Gadow on the existence of an immature skin in the British Museum which he regarded as type. It will be noted above that Gould had no type, but included all the specimens in his description. When Witmer Stone drew up the "List of the Gouldian Types" in Philadelphia, he concluded that a bird labelled Port Essington was type and at that time I agreed. I will refer to this point later.

At the time of preparation of my "Reference List" in 1912 I arranged all the specimens, and made out that half a dozen closely related forms were

THE BIRDS OF AUSTRALIA.

recognisable, all of which I regarded as subspecies, and therefore I relegated to subspecific rank only the Tasmanian, South-west Australian and the North-western form *argenteus*. Thus

Cracticus torquatus torquatus (Latham).

Queensland, New South Wales.

Cracticus torquatus olindus Mathews.

"Differs from *C. t. torquatus* in being darker above and smaller in the wing: 133-138 mm.; typical, 142-154 mm. (Olinda) Victoria."

Victoria.

Cracticus torquatus ethelæ Mathews.

"Differs from *C. t. torquatus* in being much lighter above. Eyre's Peninsula, South Australia."

South Australia.

Cracticus torquatus cinereus (Gould).

Tasmania.

Cracticus torquatus leucopterus Gould.

West Australia.

Cracticus torquatus argenteus Gould.

North-west Australia.

I later added

Cracticus torquatus colletti.

"Differs from the type (the bird in the British Museum, marked type by Gadow) of *C. t. argenteus* in its altogether smaller size and in having much less white on the tip of the tail; wing 140; culmen 37; tarsus 30 mm. (May River), Northern Territory."

Northern Territory.

and

Cracticus torquatus colei.

"Differs from *C. t. olindus* in its lighter back and wing-coverts, and from *C. t. torquatus* in its smaller bill. Mallee, Victoria."

Mallee, Victoria.

In my 1913 "List" I recognised Cabanis' genus *Bulestes* and admitted the preceding subspecies with the exception of *C. t. colletti*, which I questionably placed in the synonymy of *C. t. argenteus*, accepting Witmer Stone's type locality of Port Essington.

Campbell recently had the pleasure of examining birds from the King River, which he regarded as typical of Gould's species, and wrote: "Three ♂♂ (1 immature). Length 265-282, wing 146-147, culmen 38-39, tarsus 28 mm. In the common species (*destructor* or *torquatus*) the black on the head dissolves into the dark back, whereas in *argenteus* a deep black head is clearly defined

COLLARED BUTCHER-BIRD.

against a grey (neutral) back. The general under-surface is also whiter. It is a nice question if the two are specifically distinct, unless the bird obtained in North Queensland be considered intermediate and links up with the larger southern form." Campbell then queried the selection of Port Essington, when Gould had written "North-west Coast of Australia," and I have pointed out that this is *Gould's fault, not mine*, as the birds are so labelled in Philadelphia. Campbell has since noted in connection with this particular form that "Bynoe's specimens were obtained during the survey of the *North-west Coast*," and that "Grey's specimen is labelled in the British Museum Catalogue 'N.W. Australia,' " and concludes "That does not appear like 'Port Essington, Northern Territory.' "

It may be of interest to remind ornithologists in cases like this that history was being made when these birds were collected and that it was due to the surveys undertaken and accompanied by Sir George Grey and Bynoe that the ill-fated settlement of Port Essington was made. Consequently there can be little doubt that the specimens of *C. argenteus* did come from Port Essington, especially as it has not been found on the North-west Coast (at Wyndham or Derby for instance). Bynoe made a collection at Port Essington, see Gould, Handbook Birds Austr., Vol. I., p. 419, 1865.

BULESTES MENTALIS.

BLACK-BACKED BUTCHER-BIRD.

(PLATE 487.)*

[CRACTICUS MENTALIS Salvadori and D'Albertis, Ann. Mus. Civ. Gen., Vol. VII., p. 824, 1876: Nicura, South-east New Guinea. Extra limital.]

*Cracticus mentalis kemp*i Mathews, Austral Avian Record, Vol. I., pt. 4, p. 95, Sept. 18th, 1912: Cape York, Queensland.

Cracticus mentalis Campbell, Emu, Vol. X., p. 337, 1911 (N.Q.); H. L. White, *ib.*, p. 339; Mathews, Nov. Zool., Vol. XVIII., p. 375, 1912; Barnard, Emu, Vol. XI., p. 27, 1911; Macgillivray, *ib.*, Vol. XIII., p. 174, 1914; *id.*, *ib.*, Vol. XVII., p. 212, 1918; White, *ib.*, Vol. XXII., p. 116, 1922.

*Cracticus mentalis kemp*i Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 95, 1912.

*Bulestes mentalis kemp*i Mathews, List Birds Austr., p. 244, 1913.

DISTRIBUTION. Queensland: Cape York District only.

Adult male. Entire crown of head, sides of face and hind-neck deep black; upper mantle white intermixed with black feathers in the centre; back deep black with slate-grey bases to the feathers; scapulars white, more or less mixed with black; edge of wing white; lesser, median and greater upper wing-coverts black fringed with white; bastard-wing black edged with white; primary-coverts black at the base and white on the terminal half; flight-quills black with more or less white at the base of the primaries, the secondaries broadly margined with white on both webs, except the two outermost; rump and upper tail-coverts white; tail black with more or less white at the base and tip; rectal-bristles black; chin black with black hair-like tips to the feathers; remainder of the under-surface white or greyish-white including the throat, breast, abdomen, sides of body, thighs, under tail-coverts, axillaries, and under wing-coverts; under-surface of flight-quills glistening black with white margins to the secondaries and basal portion of the primaries; lower aspect of tail black, broadly tipped with white and fringed with white at the base of the feathers. Eyes deep chestnut, feet blackish, bill bluish-white with black tip. Total length 258 mm.; culmen 37, wing 147, tail 104, tarsus 31. Figured. Collected at Skull Creek, Cape York, North Queensland, on the 10th of December, 1912.

Adult female. Similar to the adult male.

Female immature. Crown of head, hind-neck, and mantle smoke-brown with pale shaft-streaks to the feathers and black feathers appearing on the fore-part of the head, above the eye, and on the nape; scapulars white tinged with pale smoke-brown

* The Plate is lettered *B. kemp*i.



H. Grönvold. del

Witherby & Co

BULESTES KEMPI.
(BLACK-BACKED BUTCHER-BIRD).

BLACK-BACKED BUTCHER-BIRD.

or black ; back blackish or smoke-brown with lead-grey bases to the feathers ; upper tail-coverts white, tinged with fawn-colour ; lesser and median upper wing-coverts black narrowly fringed with white ; greater coverts blackish-brown with a central streak of white which is cream-colour at the tip, the white increasing in extent on the inner ones, where it occupies almost the whole of the feather ; primary-coverts similar ; outer edge of wing white ; flight-quills blackish, white at the base of the webs, which extend towards the inner ones ; some of the secondaries are margined with white on both webs and also the tips ; tail black tipped with white ; sides of face blackish-brown with pale shaft-streaks ; the feathers in front of the eye have black hair-like tips ; rictal-bristles black ; chin, throat, breast, abdomen, thighs, and under tail-coverts white, like the axillaries, under wing-coverts and inner margins of quills below ; some of the feathers on the chin have black hair-like tips ; under-surface of flight-quills greyish-brown ; lower aspect of tail blackish tipped with white. Eyes black, feet and bill lead-grey. Figured. Collected at Skull Creek, Cape York, North Queensland, on the 14th of December, 1912.

Eggs. The eggs of this species vary considerably in the general colouring and disposition of the markings, as well as in size and shape. A clutch of three, of one of the most usual forms met with, is swollen oval in shape, and has a ground-colour of a pale greenish-grey, spotted and blotched, chiefly at the larger end, with reddish-brown, purplish-brown, and dull slate. Surface of shell smoothly granular and rather glossy. They measure 25 mm. by 21. Another clutch of three is long oval in shape, and has a pale brown ground-colour, well spotted with reddish-brown, purplish-brown, and dull slate. Surface of shell smooth and rather glossy. They measure 28–30 mm. by 21–22.

Nest. The usual open, shallow, cup-shaped structure, composed of sticks and lined with strong grass roots, and placed in the forked branches of a tree in forest country ; and at heights from 14 to 35 feet or more from the ground.

Breeding season. October to December.

THE history of this very recent addition to the Australian Avifauna began in 1911, when Campbell recorded : “ *Cracticus mentalis* (Black-backed Butcher-Bird). Through the enterprise of Mr. H. L. White, New South Wales, and the energy of Mr. Harry Barnard, Queensland, this New Guinea species is now established as an Australian bird also. Mr. Barnard observed several of these birds at Lockerbie, Cape York, and discovered a pair breeding 1/12/10. Mr. White describes those eggs in the next article. . . . *C. mentalis* is a small Butcher-Bird (about 10 inches total length) and is black and white, similar to *C. argenteus* of North-west Australia, but having a black back instead of silvery-grey.”

Barnard wrote : “ This is a New Guinea bird, and now recorded for Australia. It inhabits the forests of tall stringy-bark trees, and is always found in pairs. One pair I located built no fewer than four nests, all of which were deserted on completion. I succeeded in getting only one pair of eggs, late in the season. The habits of these birds closely resemble those of *Cracticus destructor* and the note is similar, but very much weaker, and can only be heard a short distance away.”

THE BIRDS OF AUSTRALIA.

Macgillivray added: "Mr. McLennan found this small Butcher-Bird very numerous at Cape York between the 16-mile point on the telegraph line and the Jardine River, where several old nests were noted. Several nests were obtained by Mr. Wheatley on the Batavia. ♂ irides dark brown; bill, basal half light horn-colour, rest black; legs greyish-black. ♀ irides dark brown; bill, basal half light horn-colour, rest black; legs slaty-colour. Stomach contents in both, beetles. Length in flesh $9\frac{7}{8}$ inches."

Later he noted: "Was fairly plentiful in the forest country along the Archer River."

The above is the complete history down to date and there is not much to add on the technical side. Soon after Barnard had discovered the bird Mr. Robin Kemp collected a series for me and upon comparison with typical birds I described the Australian form.

My description reads

Cracticus mentalis kempi.

"Differs from *C. m. mentalis* in its smaller size throughout. Cape York (North) Queensland."

In the *Emu*, Vol. X., p. 337, 1911, Campbell recorded the New Guinea *C. mentalis* Salvadori and d'Albertuis as a Cape York breeding bird. I have now received a series of birds from that locality, and upon comparison with a series from the type locality I find that the Cape York bird is smaller in every dimension. An immature specimen from Nicura (the type locality), which is just commencing to take on the adult plumage, has a wing equalling that of the largest Australian specimen while its bill is much heavier. The back of the neck in the Australian bird has less white, and the white on the tail-feathers is less extensive. The bill in the New Guinea bird is longer and heavier, and the tarsi are also longer and stouter. Measurements of largest Australian specimen:

Culmen (exp.)	36	depth	14	wing	145·5	tarsus	28 mm.
<i>Nicura</i> juvenile	36	„	16	„	146	„	31 „
<i>Nicura</i> adults	41-42·5	„	16	„	151-153	„	31 „

In my 1913 "List" I transferred it to *Bulestes*, but I now find these birds a little more complex than anticipated, and it seems that this bird agrees structurally with *Bulestes* through a different series of developmental stages, which I am now working out.

GENUS—STREPERA.

- STREPERA Lesson, Traité d'Ornith. livr. 5, p. 329
(end), 1830. Type (by tautonymy) *C. strepera* Latham =
Corvus graculinus White.
- Coronica* Gould, Synops. Birds Austr., pt. 1., pl. (5),
Jan. 1st, 1837. Type (by subsequent designa-
tion, Selby, Cat. Gen. Subgen. Types Aves, p.
16, 1840) *C. fuliginosa* Gould.
- Neostrepera* Mathews, Austral Av. Rec., Vol. I., pt. 8,
p. 196, March 20th, 1913. Type (by original
designation) *Strepera arquata* Gould.

LARGEST Cracticine birds with long bill, long wings, long tail and short stout legs and strong feet.

The bill is conical, longer than the head, the culmen more or less arched, basally flattened, anteriorly semi-keeled and laterally compressed, the tip short, sharp and decurved with a posterior notch, the edges of the mandibles straight behind the notch; the depth of the upper mandible at the base equal to basal breadth; the culmen is rounded at its base into a semi-shield; the nasal groove has disappeared as in the preceding Cracticine forms, the nostrils appearing as linear slits with scarcely a depression evident, placed so near the frontal feathers, which approach a little, that the appressed nasal bristles reach over the nostrils; these are few however and scarcely noticeable; the rictal bristles are six in number, two or three longer and more pronounced; the under mandible is stout at the base, about half the depth of the upper; owing to the compression only a narrow triangular interramal space is seen, less than half the length of the under mandible which has an upcurved hooked tip; the gonys is angulate and keeled and anteriorly strongly laterally compressed.

The wing has the first primary short, about half the length of the third primary and shorter than the secondaries; the second is a little longer than the eighth primary which exceeds the secondaries; the third a little longer than the seventh, and a little less than the third, fourth and fifth primaries, which are subequal and longest.

The tail is long and slightly rounded in shape.

THE BIRDS OF AUSTRALIA.

The legs are short and stout, the front of the tarsus booted or showing scutes obscurely; the toes are fairly long and stout, the claws sharp; the hind-toe short, about equal to inner toe in length, but hind-claw very long, so that hind-toe and claw are subequal with middle toe and claw; outer toe almost equal to the middle toe but the claw shorter; inner toe shorter with claw only equalling middle toe alone.

It is obvious from consideration of these superficial features that *Strepera* is very closely allied to *Gymnorhina* and *Cracticus* and has no close relationship with the *Corvidæ*; the bill features of the latter, as regards the nostrils, widely separate it and this is confirmed by the leg structure, the outer side of the tarsus of *Corvus* showing a row of small scutellæ between the frontal heavily scuted plate and the hind entire plate; the proportion of the inner and outer toes is exactly the reverse in *Corvus* to that given above for *Strepera*.

The very detailed study of the Myology of the Bell-Magpie (*Strepera*) and its Position in Classification by Dr. Leach (*Emu*, Vol. XIV., pp. 2-38, pls. I.-III., 1914) proves the absolute unanimity that exists in the musculature of the Passeriformes, and the lack of value of the features shown by these birds in connection with classification. We have been continually reminded by superior non-ornithologists that we must be guided by the deeper seated characters of the myology and osteology; in the Passeriformes there are at present known no deeper seated characters as regards myology. Leach very carefully examined the myology of *Strepera*, *Gymnorhina*, *Cracticus* and *Corvus* (as represented in Australia) in minute comparison with the elaborate study of the Myology of the (American) Raven (*Corvus*) published by Shufeldt. He was unable to find any features whatever in which they differed appreciably, and it is interesting to note that when some minor differences were noted between that of the American Raven and *Strepera*, the Australian Raven generally agreed with the latter. This suggests extreme care in singling out any single feature for comparison.

Leach noted that Gould was convinced of the relationship of the birds.

In connection with the genus *Strepera*, Gould recorded: "On a careful examination of the members of this genus, it will be perceived that their relationship to the *Corvidæ*, to which they have been usually assigned, is very remote, their size and colour being, in fact, the only features of resemblance; their whole structure and economy are indeed very different from those of every other known bird, except those of *Gymnorhina* and *Cracticus*, with which genera, in my opinion, they form a very distinct group, the natural situation of which is among the *Laniadæ* or Shrikes."

A general account of their economy he added as follows: "These birds seek their food on or near the ground, sometimes in swampy situations and

STREPERA.

even on the seashore, at others on the most sterile plains, far distant from water; grasshoppers and insects of every order are eaten by them with avidity, and to these grain seeds and fruits are frequently added; they hop with remarkable agility over the broken surface of the ground, and leap from branch to branch with great alacrity; their flight is feeble and protracted, and they seldom mount high in the air, except for the purpose of crossing a gully, or for passing from one part of the forest to another, and then merely over the tops of the trees; during flight they usually utter a peculiar shrill cry, which is frequently repeated and answered by other birds of the same troop, for they mostly flit about in small companies of from four to six in number, apparently the parents and their offspring of the year."

Having failed to find anything of value in the Myology, Leach referred to the pterylosis of *Strepera* and was rewarded by getting evidence of some value, the pterylosis of *Strepera* agreeing with that of *Gymnorhina* and *Cracticus* and disagreeing with that of the Raven in the feathering of the dorsal tract. Nothing was gained by examination of the convolutions of the intestines, all the birds showing agreement in this respect. The palatal structure was then observed, and in this *Strepera* agreed with *Gymnorhina* in showing a palate of a compound ægithognathous type, though not so strongly developed as in that genus. Parker first recorded this feature and upon it founded his "Austro-coraces," and here it is very interesting to record once more the confirmation of external features by the study of internal characters. Thus, I have indicated that my study led me to the conclusion that *Strepera* was the least modified of the three groups, *Cracticus* the most, but *C. destructor*, the one studied by Leach, the least of the Cracticoid (*s. str.*) series. I suggest here the comparison of the palate of *Neostrepera* which should provide interest in that it shows an early *Strepera* modified in another direction to that of *Cracticus*.

It will be noted that Leach never once discussed the suggested relationship of this group to the Laniidæ. This is disappointing, because even if there is no true *Lanius* in Australia he might have commented upon *Artamus* for instance, a common and typical Australian form which has been referred to the Laniidæ and has been shown to possess suggestive skeletal skull features. As regards the family name, Cracticidæ must be used as already pointed out, and it may be left near the Laniidæ until further investigation takes place as to the relationships between Laniidæ and Cracticidæ and, say, Artamidæ.

As regards the suggested grey ancestral form, the problem of the rufescent *Melloria* is significant; if that red phase be a really ancestral phenomenon, then the distinctness between *Melloria* and, say, *Strepera* is well marked, but Macgillivray has recorded rufous-looking specimens of *Cracticus nigrogularis*,

THE BIRDS OF AUSTRALIA.

and then the immature of *Bulestes torquatus* is less grey, and we arrive at the brown immature of *Strepera fuliginosa*. Study along these lines might also prove productive, especially if undertaken in connection with more detailed study of the internal structure of such immature forms, as these show development of osteological features sometimes in an important manner.

Genus NEOSTREPERA.

This most extraordinary evolution of the Cracticoid series was differentiated "from *Strepera* in lacking the very distinct hook at the end of the maxilla."

At the time I made the separation I regarded the value of the hooked tip as of little consequence, but as genus *lumpers* separated *Gymnorhina* from *Cracticus* by this character alone I felt justified in naming this form of *Strepera*. Increased concentration on the group showed that while the hook was still a matter of little import in itself it indicated quite an appreciable amount of divergence, and the peculiarities suggested by the lack of hook became emphasized. Superficially this genus is a "*Strepera*" with two slight characteristic differences, the paler grey coloration and the lack of the hook to the bill. As a matter of fact the juvenile shows a slight hooked tip to the bill very like the slight hooked tip seen in the juvenile of typical *Cracticus*, but where as in the latter genus the tip is developed to an extraordinary extent, in this it is altogether dispensed with.

The bill is almost dagger pointed, conical and laterally compressed, the base expanding a little into a rounded frontal semi-shield, quite separated from the basal frontal feathering; the points of both mandibles are sharp without any hook, the culmen ridge straight and anteriorly keeled and much compressed laterally. The wing has the second primary subequal with the seventh, the first shorter than the secondaries, and the third, fourth, fifth and sixth subequal and longest. The tail is long and rounded, but scarcely wedge-shaped though so regarded ("*cuneicaudata*"). The legs are long and strong, showing six marked scutes anteriorly.

This is the extreme development of the Cracticoid stem in the opposite direction from that pursued in the evolution of *Cracticus*. It is the largest form and, I consider, shows the most ancestral style of colouring. It has the widest distribution restricted to the southern parts of Australia ranging to the west, being the only form of this group that has reached that locality. It also exists in Tasmania in the largest form and occurs on the Furneaux Group, but not on King Island, where a different form of *Strepera* lives. This is suggestive, but the exact relationships of the forms are not yet apparent.

Key to the Species.

White bases to tail-feathers	..	..	..	..	<i>S. graculina.</i>
Black bases to tail-feathers					
No white bar on wing	..	..	..	..	<i>S. melanoptera.</i>
White bar on wing					
Under tail-feathers white	..	..	..	..	<i>S. versicolor.</i>
Under tail-feathers black	..	..	..	..	<i>S. fuliginosa.</i>
			also		
Black under tail-coverts	..	..	..	..	<i>S. fuliginosa.</i>
White under tail-coverts					
No white bar on wing	..	..	..	..	<i>S. melanoptera.</i>
White bar on wing					
Bases to tail-feathers white	..	..	..	..	<i>S. graculina.</i>
Bases to tail-feathers black	..	..	..	..	<i>S. versicolor.</i>

Order PASSERIFORMES.

No. 598.

Family CRACTICIDÆ.

STREPERA GRACULINA.

PIED CROW-SHRIKE.

(PLATE 488.)

CORVUS GRACULINUS White, Journ. Voy. New South Wales, p. 251 (before Aug.), 1790 :
New South Wales.

Corvus graculinus White, Journ. Voy. New South Wales, p. 251, 1790.

Coracias strepera Latham, Index Ornith., Vol. I., p. 173 (Dec. 9th), 1790 : Norfolk Island
=New South Wales.

Gracula strepera Shaw, Gen. Zool., Vol. VIII., p. 462, 1809.

Corvus strepera Leach, Zool. Miscell., Vol. II., p. 78, 1815.

Cracticus streperus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. V., p. 356, 1816 ; Vigors
and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 261, 1827.

Barita strepera Temminck and Laugier, Planch. Color d'Ois., Vol. III., 46^e livr., text to
Barita, 1824.

Strepera strepera Lesson, Traité d'Ornith., livr. 5, p. 330, 1830.

Gracula chalybea Voigt's ed., Cuvier's Thier. Reich., Vol. I., p. 435 (pref. Easter), 1831 :
New South Wales.

Coronica strepera Gould, Synops. Birds Austr., pt. i., pl. 5, 1837.

Strepera graculina Gray, List Genera Birds, 2nd ed., p. 50, 1841 ; Gould, Birds, Austr.,
pt. xv. (Vol. II., pl. 42), June 1st, 1844 ; *id.*, Handb. Birds Austr., Vol. I., p. 168, 1865 ;
Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 57, 1877 ; Ramsay, Proc. Linn. Soc. N.S.W.,
Vol. II., p. 180, 1878 ; *id.*, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds
Austr., p. 7, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 58, 1901 ;
North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 8, 1902 ; A. G. Campbell, Emu,
Vol. II., p. 11, 1902 (Vic.) ; Cochrane, *ib.*, Vol. III., p. 48, 1903 (N.Q.) ; Batey,
ib., Vol. VII., p. 4, 1907 (Vic.) ; Austin, *ib.*, p. 74 (N.S.W.) ; Cornwall, *ib.*, p. 173,
1908 (N.Q.) ; Mathews, Handl. Birds Austral., p. 107, 1908 ; Campbell, Emu,
Vol. VIII., p. 145, 1909 (Eggs) ; Maddison, *ib.*, Vol. IX., p. 255, 1910 (Vic.) ; Camp-
bell and White, *ib.*, Vol. X., p. 195, 1910 (Q.) ; Broadbent, *ib.*, p. 235 (N.Q.) ;
Barnard, *ib.*, Vol. XI., p. 32, 1911 (N.Q.) ; Cleland, *ib.*, p. 95 (Food) ; Campbell,
ib., Vol. XIII., p. 70-1, 1913 (Egg) ; Leach, *ib.*, Vol. XIV., p. 2, 1914 (Myology) ;
Belcher, Birds Geelong, p. 369, 1914 ; S. A. White, Emu, Vol. XIV., p. 144, 1915 :
(Mallacoota, Vic.) ; Cheney, *ib.*, p. 213, 1915 (Vic.) ; Campbell and Barnard, *ib.*,



H. Grönvold, del.

Witherby & Co

STREPERA FULIGINOSA.
(BLACK CROW-SHRIKE)

STREPERA GRACULINA.
(PIED CROW-SHRIKE).

PIED CROW-SHRIKE.

Vol. XVII., p. 37, 1917 (N.Q.); Macgillivray, *ib.*, p. 211, 1918 (N.Q.); Bryant, *ib.*, Vol. XIX., pp. 63-5, 1919 (Vic.); S. A. White, *ib.*, pp. 221-226 (Q.); *id.*, *ib.*, p. 249, 1920; Jackson, *ib.*, pp. 268-272, 1920 (Q.).

Barita strepens "Merr." Bonaparte, Consp. Gen. Av., Vol. I., p. 367, 1850 (Feb. 1851): *nom. nud.*

Strepera graculina graculina Mathews, Nov. Zool., Vol. XVIII., p. 443, 1912; *id.*, List Birds Austr., p. 314, 1913.

Strepera graculina robinsoni Mathews, Nov. Zool., Vol. XVIII., p. 443, Jan. 31st, 1912: (Johnstone River) North Queensland; *id.*, South Austr. Orn., Vol. 2, p. 62, 1915; *id.*, List Birds Austr., p. 315, 1913; H. L. White, Emu, Vol. XXI., p. 164, 1922.

Strepera graculina ashbyi Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 78, Dec. 29th, 1913: Black Spur, Victoria.

Neostrepera versicolor riordani Mathews, *ib.*: Geelong, Victoria. (Otway Forester.)

Strepera graculina magnirostris H. L. White, Emu, Vol. XXII., pt. 4, p. 258, Aug. 5th, 1923: Cape York, North Queensland.

DISTRIBUTION. Eastern Australia from Cape York Peninsula to Victoria.

Adult male. General colour both on the upper and under-surface black; the rectal bristles strongly developed, the feathers on the lores and fore-part of cheeks are bristly in texture and those on the chin and upper-throat have hair-like tips, the primary-quills white at the base, both on the outer and inner webs, the under tail-coverts cream-white like the base and tips of the tail-feathers. Eyes yellow. Bill and feet black. Total length 460 mm.; culmen 62, wing 247, tail 180, tarsus 55. Figured. Collected on the Johnson River, North Queensland, on the 19th of June, 1900, and is the type of *Strepera graculina robinsoni*.

Adult female similar to the male.

Eggs. Two to four eggs form the clutch, and are subject to considerable variation in colouring and general markings, as well as in size and shape. A clutch of three eggs, of the most usual variety met with, is oval in shape, ground-colour pale buff-brown; spotted and blotched, particularly at the larger end, with light to dark purplish-brown and umber. Surface of shell slightly granulate, and rather glossy. Under the lens minute pittings appear on the surface of the shell. The clutch measures 40-41 mm. by 28, and was collected at Scone, New South Wales, on the 14th of October, 1909, and placed 50 feet from the ground in a Forest Apple Tree (*Angophora*). Another clutch containing four eggs taken in the same district on the 18th of October, 1908, is swollen oval in shape, ground-colour of a beautiful salmon-brown, well blotched with cloudy markings of purplish-brown, pale reddish-brown and umber; the markings becoming closely packed together at the larger end of each egg, except in specimen B where they cluster at the smaller end. Surface of shell slightly granular and very glossy. The clutch measures 28-30 mm. by 29. The nest was placed up 30 feet from the ground in a White Box (*Eucalyptus hemiphloia*). Another clutch of three taken at Belltrees on the 5th of October, 1909, is oval in shape, ground-colour creamy-white with a very faint pinkish tinge, marked lengthways with peculiar long narrow streaks and smears of purplish-brown and umber, well distributed all over each egg, and the general streaky character of the markings closely resembling those in some forms of the eggs of the common Black-backed Magpie (*Gymnorhina tibicen*), and make this clutch of unusual interest on that account. There is absolutely no doubt as to the authenticity of the clutch, as well as two other similar clutches of this remarkable magpie-like character taken

THE BIRDS OF AUSTRALIA.

at Belltrees. The clutch measures 41–44 mm. by 29–30 ; surface of shell smooth, and slightly glossy. Of the clutch under notice, the nest was placed 45 feet up from the ground in a White Boxtree (*Eucalyptus hemiphloia*). Another clutch of three, taken at Rous, Richmond River, New South Wales, on the 20th of October, 1901, is swollen oval in shape ; ground-colour of a creamy-white, spotted and blotched with purplish-brown and light and dark umber, particularly about the larger end of each egg. Surface of shell smoothly granular, and with very little gloss. The clutch measures 40–41 mm. by 28.

Nest. Is a large open structure composed of dead sticks, and well-lined inside, and usually very neatly lined with bark, rootlets, twigs, or dried grass. Diameter over all 15 to 19 inches, by a depth over all of 6 inches. Egg cavity : diameter inside 6 to 6½ inches, depth inside 2½ to 2¾ inches.

Eggs. The eggs of this species are subject to variation in their colouring and general markings, as well as in size and shape. From two to four eggs usually form the clutch, but three are most frequently found. A clutch of three eggs, of the most usual variety met with, is of a pale olive-brown ground-colour, spotted and blotched with dull markings of very pale purplish-brown and umber, more closely set together about the larger end of each egg. Surface of shell smoothly granular, and slightly glossy, and minutely pitted all over. The clutch measures 39–40 mm. by 27–28. Taken at Coen, Cape York Peninsula, North Queensland, on the 5th of November, 1921. Nest placed 55 feet up from the ground in a Mountain Ash (*Eucalyptus* sps.). (*S. g. magnirostris*.) Another clutch of four eggs, taken at Caen, Cape York Peninsula, North Queensland, on the 5th of November, 1921, is rather swollen oval in shape, ground-colour of a creamy-white, marked with small rounded spots of very pale purplish-brown and light to dark umber. Surface of shell smoothly granular and with very little gloss. The clutch measures 40–41 mm. by 28–30. (*S. g. magnirostris*.)

Nest. Is rather a firmly built open structure, composed of dried sticks, and lined with a rather thick layer of rootlets and thin twigs, and sometimes dried grasses. Diameter across over all 16 to 18 inches ; depth over all 5½ to 6½ inches ; egg cavity across over all 8½ inches, egg cavity inside diameter 6½ inches, and depth inside 2½ inches. (*robinsoni*.)

Breeding-season. September to December or January.

WHILE Latham was preparing his *Index Ornithologicus*, a few interesting Australian birds came before him and these he included, although they had not been included in his General Synopsis of Birds. The present species is one of these and he named it *Coracias strepera*, giving a lengthy Latin description with the locality “Norfolk Island.” It does not, and apparently never did, inhabit that island, and Latham’s specimen undoubtedly came from Sydney, as did other birds also localised as from Norfolk Island. Simultaneously, however, the bird was figured and described in White’s *Journal of a Voyage to New South Wales* under the name *Corvus graculinus*, and this name has been commonly accepted, apparently in the first instance to avoid tautonymy, though both publications were dated the same year. It is fortunate that there appears to be no doubt whatever that White’s book was published first, and consequently the customary name is valid.

PIED CROW-SHRIKE.

No notes of its habits were given by White, while Latham's account reads: "This species is very numerous at *Norfolk Island*, and is very clamorous, especially at nights; called a *Magpie* by our sailors, perhaps on account of the colours, added to the similarity of voice. It is a very foolish bird, running after any person, and suffering itself to be knocked down with a stick."

Though figured among the Watling drawings no note of habits is given.

Vigors and Horsfield recognised its affinity, classing it as a species of *Cracticus* and quoting: "This bird," says Mr. Caley, "is called by the colonists *Hircine Magpie*. It is very good eating, except the hinder parts, which have a strong goatish smell. It is gregarious. I have known large flocks of these birds come occasionally into the small trees (*Gum-wattle*) about Government House and elsewhere, and hop about from tree to tree until driven away by being fired at. They may also be seen in large flocks on the new-sown wheat, particularly in the depth of winter."

Gould added: "It is very generally distributed over the colony of New South Wales, inhabiting alike the brushes near the coast, those of the mountain ranges, and also the forests of *Eucalypti* which clothe the plains and more open country. As a great part of its food consists of seeds, berries, and fruits, it is more arboreal in its habits than some of the other species of its group, whose structure better adapts them for progression on the ground, and whose food principally consists of insects and their larvæ. Like the other members of the genus, it is mostly seen in small companies, varying from four to six in number, seldom either singly or in pairs. I am not, however, inclined to consider them as gregarious birds in the strict sense of the word, believing, as I do, that each of these small companies is composed of a pair and their progeny, which appear to keep together from the birth of the latter until the natural impulse for pairing prompts them to separate. It is during flight that the markings of this bird are displayed to the greatest advantage, and render it a conspicuous object in the bush; while on the wing it utters a peculiar noisy cry by which its presence is often indicated."

Mr. Thos. P. Austin has written me: "Some years during the winter small flocks of this species arrive, though most of them never stay long, but there are always a few pairs of birds in this district, and they breed here sparingly, usually placing their nests near the extreme end of a long thin horizontal branch high up in a large tree. The peculiar note of these birds, usually uttered while flying, can be heard at a very considerable distance, but it is rather difficult to tell by the sound how far away the birds really are."

Mr. J. W. Mellor's notes read: "I have seen these birds in the Blackall Ranges in Queensland, also on the Tweed River in New South Wales. On the Capricorn Islands, South Queensland, in Oct., 1910, on Nor-West Island,

THE BIRDS OF AUSTRALIA.

we were for some time puzzled about the loud notes of a 'honey-eater' which we thought must be of the wattle-bird or friar-bird type; the loud liquid notes came from the midst of the thick sub-tropical growth that covers this coral islet. At last one day as I was hidden in the scrub near high-water mark watching for waders, a Crow-shrike flew on to a dead tree near by and gave forth the peculiar 'honey-eater' notes. The Crow-Shrikes were extremely shy and wary and scarcely ever showed themselves, and it was only by watching the beach, where they fed upon marine insects, worms, etc., that I was able to procure a specimen. They also fed upon the berries of the shrubs, but how they subsisted without water I do not know; there was no water on the island, but perhaps the marine tit-bits that they found supplied all the moisture they required."

Mr. F. E. Howe writes: "During the autumn of 1905 the call 'Off-off-for-home' of this bird was heard. This call was unfamiliar to me, but Mr. L. Chandler tells me that the bird is an autumn visitor to Bayswater, and may be seen in the orchards after the apples—a fruit they appear very partial to, and from his description of their call this was no doubt the bird I heard."

Mr. E. J. Christian states: "In autumn this bird is apt to be a great nuisance to fruit growers. They are extremely cunning and not altogether shy. One may chase or frighten them from a garden with a gun, but as soon as the owner's back is turned they will come again. They are not common here and I think that only one pair was here this autumn, yet this pair worked great havoc with the quinces. One day I watched one under a quince tree eating some of this fruit and a young hen Black-backed Magpie was near by eating grubs; when she approached the *Strepera* the latter showed fight, and after fully ten minutes drove off the Magpie. They have a peculiar harsh note. They are not carrion eaters."

Writing of the southern bird (Otway Forester) Belcher says: "is without exception the most wary of all the forest-dwelling birds, as it is also one of the hardest to find if you happen to want a specimen."

Mr. E. Ashby has written: "This bird was common at Boolarra in Gippsland in 1886, also at Maryville, both in Victoria. I also saw large flocks of them in the New England district of New South Wales in March, 1909. The note of this bird is much more musical than that of *S. melanoptera*. I have never met with this species in South Australia."

Mr. A. G. Campbell wrote: "A stronghold of this bird is the Grampian Mountains in Victoria. When the nesting season, occupying October to January, is over, the birds collect into large flocks which patrol the outlying country in search of cranberries, as well as insect food. It is a characteristic sight any fine morning during winter to see quite fifty birds sailing down

PIED CROW-SHRIKE.

from the ranges with chattering and whistling calls, and again towards evening making their way back in rowdy mobs."

A. G. Campbell had already recorded: "Sometimes appears in great numbers, being a winter visitor coming from the ranges where it nests. A flock of several scores appeared about May, 1900, and stayed for some time before moving on to another portion of the district. They are exceedingly noisy birds, and always attract attention by their curious manner of following one another in a long line when flying. Being insectivorous, such a company must do an immense amount of good in the district where they sojourn."

Cochrane writing from Cooktown, N. Queensland, stated: "Here 21st May; in large numbers, 27th May; a few, 12th October."

Cornwall wrote from Mackay, N. Queensland: "The mournful cry of the Pied Crow-Shrike may be heard on many of the large islands off the coast, but so far I have not met with the bird on the mainland. On 9th November we found them nesting on L. Island, but in each case the nest was placed far out on thin horizontal branches of pine trees overhanging a very high cliff. On 25th November a nest was secured which contained three fresh eggs."

Campbell and White, reporting the birds of the Capricorn Group, Queensland, wrote: "As in the case of the Sea Eagles, a pair of this *Strepera* appeared to occupy one or other of the principal islands. On Mast Head a pair occasionally approached the camp, and it was pleasant, at times, to hear their loud, familiar calls, or sometimes a clear, single whistle-like note, especially at early morn (10 minutes to 5 o'clock). On first landing at North-West Island we heard a very full liquid note coming from the dense scrub, which resembled the call of some Honey-Eater, but much surprise was expressed next day to find that the call was that of the Pied Crow-Shrike. A colony, apparently, of these birds had taken up their abode on North-West Island, and had brought up young for many years. During the heat of the day these birds kept to the cool shade of the high *Pisonias*, but in the early morning and evening they frequented the coast line. The *Strepera* family have a strong odour as a rule, but the birds inhabiting the islands had a decided musky odour resembling that of the Mutton-Bird—a circumstance worth following up, for one reason. Birds, for instance, collected on Kangaroo Island (S.A.) did not possess this peculiar smell. Did the Crow-Shrikes obtain their Petrel perfume by some connection with their (the Mutton-Birds') burrows?"

Broadbent recorded it from Dalrymple's Gap mountains, Cardwell district, and Campbell and Barnard added: "The Pied Bell-Magpie appeared to be confined to the ranges where it was feeding upon native figs and other wild fruits. Ramsay probably made an error in recording *S. anaphonensis* (*cuneicaudata*) for this region."

THE BIRDS OF AUSTRALIA.

Barnard wrote: "One pair observed at Cape York, which had evidently got astray, and remained for a short period only in the locality."

Macgillivray later noted that McLennan saw a Pied Bell-Magpie on the Pascoe River, but did not get a specimen.

Recently H. L. White received eggs from Coen, Cape York Peninsula, and noted that the difference in the eggs from those of the southern form was very marked.

Bryant wrote from Corryong, north-east of Victoria, near the Murray River: "Pied Bell-Magpies were very plentiful, and took a good toll of the maize crops, and were ably assisted in this by the Lories and Cockatoos. These Black and White 'Jays' were very tame, and appear to have a very great deal of joy in their lives, if their chatter and antics are any guide."

Captain S. A. White recorded from the Bunya Mountains, South Queensland: "This bird was fairly common, but showed preference to the open timber country. Their beautiful ringing call is much appreciated amidst the mountain forests. They seemed to be mostly in pairs. Upon comparison with birds taken further north by the writer, not the slightest variation is seen. Sex? Iris bright yellow; bill black; feet black. Total length 485 mm.; wing from body to tip 315 mm.; spread 760 mm."

No subspecies were separated (though be it remarked, *melanoptera* and *fuliginosa* are representative species of this form), until I admitted in my "Reference List"

Strepera graculina graculina (White).

New South Wales, Victoria.

Strepera graculina robinsoni Mathews.

"Differs from *S. g. graculina* in its smaller size; wing 240-247 mm. (Johnstone River), North Queensland."

North Queensland.

These were unaltered in my 1913 "List" save that I added "South Queensland" to the range of the former.

I have since distinguished

Strepera graculina ashbyi.

"Differs from *S. g. graculina* in its smaller size and lighter colour: Black Spur, Victoria," and *Strepera graculina riordani* or the Otway Forester, and H. L. White has described *Strepera graculina magnirostris* Cape York and these may be accepted.



H. Grönvold, del

Witherby & Co

STREPERA MELANOPTERA.
(BLACK WINGED CROW-SHRIKE).

STREPERA MELANOPTERA.

BLACK-WINGED CROW-SHRIKE.

(PLATE 489.)

STREPERA MELANOPTERA Gould, Proc. Zool. Soc. (Lond.), 1846, p. 20, May: South Australia.

Strepera melanoptera Gould, Proc. Zool. Soc. (Lond.), 1846, p. 20; *id.*, Handb. Birds Austr., Vol. I., p. 172, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 61, 1877; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 8, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 61, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 12, 1902; A. G. Campbell, Emu, Vol. V., p. 141, 1906: Kangaroo Island; Mathews, Handl. Birds Austral., p. 107, 1908; Howe, Emu, Vol. VIII., pp. 132-3 and 136, 1909 (Vic.); Hall, *ib.*, Vol. IX., p. 127, 1910 (S.A.); Howe, *ib.*, p. 234 (Vic.); Wilson, *ib.*, Vol. XII., p. 39, 1912 (Vic.); Mellor, *ib.*, p. 40 (S.A.); Ashby, *ib.*, p. 48 (S.A.); Chandler, *ib.*, Vol. XIII., p. 44, 1913 (Vic.); Howe and Tregellas, *ib.*, Vol. XIV., p. 71, 1914 (Vic.).

Strepera melanoptera melanoptera Mathews, Nov. Zool., Vol. XVIII., p. 444, 1912; *id.*, List Birds Austr., p. 315, 1913.

Strepera melanoptera halmaturina Mathews, Nov. Zool., Vol. XVIII., p. 444, Jan. 31st, 1912: Kangaroo Island, South Australia; *id.*, List Birds Austr., p. 315, 1913.

Strepera melanoptera howei Mathews, Nov. Zool., Vol. XVIII., p. 444, Jan. 31st, 1912: Kow Plains, Victoria; *id.*, List Birds Austr., p. 315, 1913.

Strepera halmaturina S. A. White, Emu, Vol. XII., p. 263, 1913.

DISTRIBUTION. Victoria and South Australia only. Kangaroo Island.

Adult male. General colour of the upper-surface soot-black with dark smoke-brown tips and margins to many of the feathers, the feathers at the base of the forehead, lores, and fore-part of cheeks stiffened and bristly in texture and the feathers on the chin have hair-like tips; under-surface for the most part dark smoke-brown with glossy black shaft-lines on the throat and fore-neck; some of the primary-quills are mottled with smoke-white on the inner webs and some of the outer secondaries fringed with white at the tips; tail-feathers blackish, more or less tipped with white, or smoke-white; abdomen and sides of body inclining to dark dusky-grey; thighs soot-black; under-surface of flight-quills paler towards the base; under tail-coverts white; lower aspect of tail similar to its upper-surface but paler towards the base. Eyes orange, feet and bill black. Total length 480 mm.; culmen 66, wing 275, tail 210, tarsus 68. Figured. Collected on Kow Plains, Victoria, and is the type of *Strepera melanoptera howei*.

THE BIRDS OF AUSTRALIA.

Adult male. General colour, both on the upper and under-surface black; the feathers on the lores are bristly in texture and those on the chin have hair-like tips, the tail-feathers tipped with white, or smoky white, more extensively on the inner webs, the tips of the flight-quills dark brown and the under tail-coverts white. Eyes yellow, feet and bill black. Total length 500 mm.; culmen 72, wing 280, tail 207, tarsus 67. Figured. Collected on Middle River, Kangaroo Island, on the 17th of October, 1905, and is the type of *Strepera melanoptera halmaturina*.

Adult female similar to the male.

Nestling (Male). Everywhere covered with blackish down, paler and inclining to slate-grey on the abdomen; the quill-feathers, which are just beginning to develop, are black with dusky white margins at the tips; the tail-feathers are also beginning to develop, the outer quills of which are white, both the sheath and the feather, while the middle ones have slate-brown sheaths and the webs of the feather are black and white. Collected on Kangaroo Island in October. It is curious to notice too that the shaft protrudes beyond the rest of the feather in a needle-like point.

Eggs. From two to three eggs form the clutch, usually three. They vary somewhat in their size, shape, and general dispositions of the markings. A clutch of three is rounded oval in shape, ground-colour of a pale purplish-buff, well spotted and blotched all over with purplish-brown, dull reddish-brown and umber. Surface of shell smoothly granular and glossy. The clutch measures 40 mm. by 30. Collected at Flinders Range, South Australia, on the 8th of September, 1886. Another clutch containing two eggs is long oval in shape, ground-colour creamy, with a very pale pinkish tinge. Spotted and blotched with dull purplish-brown, umber, and pale reddish-brown. Surface of shell smoothly granular and slightly glossy. The pair measure 44-46 mm. by 30. Collected at Kow Plains, North-west Victoria, on the 23rd of September, 1912.

Nest. Is a large open structure of sticks, and lined with bark and grasses, etc., and very similar to those of the other members of this genus.

ALTHOUGH Gould described this fine species, he later concluded: "Upon a careful examination of the numerous specimens of this bird contained in my collection, I find among them two very singular varieties; one with the base of the primaries of a nearly uniform black and the tips white, and another in which the base of the primaries is white and the tips black. It is evident, therefore, that the markings of this species are not constant, and this induces me to believe that the bird I characterized as *S. melanoptera* is nothing more than one of the varieties above mentioned. I do not, however, venture to affirm that the birds received from South Australia with wholly black wings may not prove to be distinct from those from Tasmania; this is a matter for investigation of future Australian naturalists. For the present I sink the appellation *melanoptera* into a synonym (of *arguta*)."

Mr. Edwin Ashby writes: "Found all round Adelaide and Mount Lofty, but not common. Is, however, common on Kangaroo Island, and is so destructive to the fruit, both apples and plums, that orchardists destroy numbers of them. They were feeding young in the nest at Middle River, Kangaroo

BLACK-WINGED CROW-SHRIKE.

Island, in October. Their note resembles the squeaking of an ungreased wheelbarrow."

Mr. J. W. Mellor has written: "This is the only species of *Strepera* that I have seen on Kangaroo Island, and I believe that no other species exists there, as I have examined the island at the Eastern and Western ends and been also through the middle districts. While camped at Middle River on the north coast in Oct., 1905, they were noted to be quite tame and confiding, coming right up to the camp, and being most inquisitive in their habits, sitting on a dry tree and peering down at us with a curious sort of gaze. They were very energetic in searching out insects and grubs from the cracks and crevices of the old logs and dry trees around, and turned over quite large pieces of wood and bark in quest of their insect food; they use their bills in the turning-over process; sticking their beaks under a piece of wood, they would force it over with remarkable skill and energy; should the piece be too heavy to overturn, the bird would force it up sufficiently to see sideways under it, and if it perceived any desirable insect food, it would persist in forcing until it had moved the object sideways and reached the victim; should it be unable to move it in one direction the bird would hop round and attack it from another point until it succeeded. Spiders were much sought for, and as these are generally found beneath the bark of trees, to secure these the bird would force its tightly closed bill behind the piece of dry bark and then open its bill, prising the piece off by sheer force; the bill is large and powerful and it is surprising the great strength the bird has and the size of the pieces of bark it breaks off. The flight is a series of long undulating motions by which it travels at a great speed, and when frightened it will often go for miles before alighting again. Its notes are extremely loud and clear, ringing out in the crisp air for miles; 'kling, kling, kling' are the notes it utters, the ending 'g' being somewhat drawn out in a ringing manner and sounding like hitting an anvil three times in succession; this is always uttered while the bird is on the wing. I have noted them at Cape Borda on the extreme western end and at Hog Bay on the extreme east; at the latter place I observed them feeding on the berries of the white currant bush that grows on the sand dunes near the sea. I saw these birds on the mainland of South Australia at Willunga; this opposite the eastern end of Kangaroo Island, but, strange to say, on the mainland off the western end of the island they do not occur, but '*S. fusca*' takes the place. The nesting time is from September to November."

A. G. Campbell wrote of the Kangaroo Island form: "Many of this species were nesting in the sugar-gum forests that exist within three miles of the coast, and a few pairs also were noted inland in the spongy-bark gums

THE BIRDS OF AUSTRALIA.

near the river courses. All had young in various stages. One pair near our camp was photographed feeding their young at the nest. A very cold night killed these nestlings, when the parents immediately turned their attention to another young bird brought in by one of the party. They fed it regularly within a short distance of our quarters. The nestling has the primaries and particularly the secondary feathers of the wing tipped white, but the adult has the whole wing entirely black."

Hall's record of *S. melanoptera* from Eyre's Peninsula: "Back blackish, not greyish or plumbeous; between *melanoptera* and *plumbea* in colour," probably refers to the form named "*fusca*, i.e., *intermedia* Sharpe."

Ashby recorded from Schwetze's Landing, River Murray, South Australia: "A specimen of *S. melanoptera* (evidently this year's bird) shot showed a very distinct white patch on the wings, common to the allied species. *Strepera fusca*. It is possible that these mallee birds are intermediate between the two forms."

Howe has written: "On the drive out from Pinnaroo (Victorian Mallee) we saw great numbers of the Black-winged Crow-Shrike (*Strepera melanoptera*)—one lot of about 70—and secured a bird for identification. The feet and bill were black and the irides were bright orange. The bird measured about 18 inches in length. We found them nesting in the mallee. And later: "Fairly well distributed from Tailem Bend to Kow Plains. Often flushed from the ground in the short mallee. Several nests containing young."

Wilson added: "This splendid bird was not often encountered, and its timidity rendered it extremely difficult to approach"; while Chandler's notes read: "This bird, although well distributed, was not common. It is very shy, though there are exceptions to the rule. We often disturbed a bird feeding on the ground in thick mallee. It would rise hurriedly and fly away, uttering its musical notes. Nests containing eggs, and in various stages of building were found. The height from the nest from the ground varied from 15 feet to 35 feet."

Mr. J. W. Mellor, visiting Kangaroo Island, wrote: "From a neighbouring scrub came the loud ringing call 'Cling-cling-cling' of the Black-winged Crow-Shrike (*Strepera melanoptera*). I was able to get a good view of them, one coming close to me, and perching on a dry limb of a tree, where it called to its mate in the scrub a few hundred yards away."

Captain S. A. White has recorded of the Kangaroo Island Crow-Shrike: "They were in pairs and very shy, showing the greatest cunning in keeping out of our way. The loud and clear note went echoing up the deep ravine through which the river passed. The habits of this bird seemed to resemble those of other members of the genus. They hunted among the leaves and

BLACK-WINGED CROW-SHRIKE.

fallen timber for worms, grubs and insects. They were shy, and on the least alarm flew off to a distance, uttering the loud piping call so familiar to those who have spent much of their time in the bush."

Probably this form intergrades with the preceding, but no evidence has yet been produced, and it is regarded as a representative species and not subspecies, and shows more variation in a limited range than the preceding does in an extensive range.

Thus in my "Reference List" in 1912 I arranged

Strepera melanoptera melanoptera Gould.

South Australia.

Strepera melanoptera halmaturina Mathews.

"Differs from *S. m. melanoptera* in its smaller size and darker coloration above; wing 267-273 mm.; type 290 mm. Kangaroo Island."

Kangaroo Island.

Strepera melanoptera howei Mathews.

"Differs from *S. m. melanoptera* in its paler coloration above and below. Kow Plains, Victoria."

Victoria.

STREPERA FULIGINOSA.

BLACK CROW-SHRIKE.

(PLATE 488.)

CORONICA FULIGINOSA Gould, Synops. Birds Austr., pt. I., pl. (5), Jan. 1st, 1837: Tasmania.*Coronica fuliginosa* Gould, Synops. Birds Austr., pt. I., pl. (5), Jan. 1st, 1837.*Cracticus fuliginosus* Gould, Proc. Zool. Soc. (Lond.), 1836, p. 106, Feb. 1837.

Strepera fuliginosa Gray, Genera Birds, Vol. II., p. 302, 1846; Gould, Birds Austr., pt. XXXI. (Vol. II., pl. 43), June 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 170, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 61, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887; Ramsay, Tab. List Austr. Birds, p. 4, 1888; Hall, Key Birds Austr., p. 8, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 62, 1901; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 17, 1902; A. G. Campbell, Emu, Vol. II., p. 205, 1903; King Island; Fletcher, *ib.*, Vol. III., pp. 49-108, 1903 (Tas.); A. G. Campbell, *ib.*, Vol. IV., p. 118, 1905 (Vic. and Tas.); Mellor, *ib.*, Vol. VI., p. 169, 1907 (Tas.); Mathews, Handl. Birds Austral., p. 108, 1908; S. A. White, Emu, Vol. VIII., pp. 196-198, 1909 (Bass Straits Islands); Armstrong, *ib.*, Vol. IX., p. 157, 1910 (Bass Straits Islands); Littler, Handb. Birds Tas., p. 14, 1910; Thompson, Emu, Vol. XI., p. 39, 1911 (Tas.); Mathews, Nov. Zool., Vol. XVIII., p. 445, 1912; *id.*, List Birds Austr., p. 315, 1913; Fletcher, Emu, Vol. XVII., p. 227, 1918; Lord, *ib.*, Vol. XIX., p. 106, 1919.

Strepera fuliginosa colei Mathews, Austral Av. Rec., Vol. III., pt. 3, p. 63, April 7th, 1916: King Island.

Strepera fuliginosa fuliginosa Mathews, *ib.*

DISTRIBUTION. Tasmania. King Island, Bass Straits.

Adult male. General colour, both on the upper and under-surface, black with dusky grey bases to the feathers; the under-parts however are not so glossy-black as above and incline to soot-black; inner-webs of primary-quills more or less white at the base of the inner webs, the majority of the flight-quills fringed with white at the tips; tail-feathers tipped with white, more extensively on the outer feathers, the rictal-bristles fairly numerous but not so strongly developed; the lores and feathers on the fore-cheeks bristly in texture, like those on the chin and upper-throat; the under-surface of the flight-quills is blackish with more or less greyish-white at the base and the majority tipped with white, and the lower aspect of the tail is similar to its upper-surface but the dark portion not so black. Eyes yellow, bill and feet black. Total length 480 mm.; culmen 63, wing 270, tail 183, tarsus 60. Figured. Collected near Launceston, Tasmania.

BLACK CROW-SHRIKE.

Adult female. Similar to the male.

Eggs. Two to three form the clutch, and rarely four. They are not subject to much variation in shape, size, and colouring, as is the case with some other species of the genus. A clutch of three eggs taken on Flinders Island, Tasmania, on the 17th of November, 1909, is of a purplish-buff ground-colour, well spotted and blotched with dull purplish-brown and reddish-brown of various shades, becoming thickly set together at the larger ends. Swollen ovals in shape. Surface of shell comparatively smooth and glossy. The clutch measures 42-45 mm. by 30. Another clutch of three eggs taken at Gunn's Lake, near Bothwell, Tasmania, on the 17th of October, 1908, is of a pale pinkish-cream colour, well marked with spots and blotches of purplish-brown and reddish-brown of various shades, becoming closely set together at the larger ends. Swollen ovals in shape; shell rather smooth and glossy. The clutch measures 42-45 mm. by 31-32. The nest was placed 40 feet from the ground in a Spotted Gum.

Nest. Is an open structure composed of sticks, and lined with rootlets and grass, etc.

Breeding-season. September to December.

OF this species Gould, who differentiated it, wrote: "Is a permanent resident in Tasmania; its range also extends to the islands in Bass's Straits, and a few individuals have been found in South Australia. The localities it frequents are also of a different description, those preferred being low swampy grounds in the neighbourhood of the sea, and woods bordering rivers. Like the other species of the genus, it subsists on insects and grubs of various kinds, to which pulpy seeds and berries are frequently added. It is very active on the ground, passing over the surface with great rapidity."

Mr. Frank Littler has written me: "Under the name of Black Jay this bird is well known to most of us. Round bush habitations it becomes very bold and when frightened off with anything less than a gun it flies a few yards and returns as soon as one's back is turned. It has been known to fly into one of the large baskets into which apples are packed and abstract an apple, the packer being close to the basket all the time. Its natural food consists of insects and larvæ of all kinds which it finds by searching on or about the ground. Numbers of these birds may be seen in the bush turning over the leaves and rubbish hunting for grubs, etc.; while engaged thus they are easily approached."

Mr. H. Stuart Dove wrote me: "I examined all the lists and found great diversity of opinion as to the range of this species, which I had concluded previously was confined to Tasmania and the islands of Bass Strait. Apparently following Gould (above quoted), Ramsay added Victoria to South Australia and Tasmania. Campbell omitted South Australia but allowed Victoria and Tasmania, while Hall noted South-east Australia and Tasmania. This was enlarged in your 'Handlist' into Queensland, New South Wales, Victoria, South Australia, Tasmania and islands, which Leach condensed into East

THE BIRDS OF AUSTRALIA.

Australia, South Australia, Tasmania and islands. In your 'Reference List' you correctly (in my view) restricted it to Tasmania and King Island, Bass Straits. Once since I came to reside at Devonport, *S. fuliginosa* arrived in numbers out of some of the forests and sat about on the fences right in the town boundaries as the cold weather was beginning. During my residence near Table Cape the same thing occurred one winter, these great birds sitting in dozens along a settler's fence past which I used to ride daily. They were quite tame, which *S. arguta* never is, being a wary fellow. A friend who camped for some time on the west coast of our island, where the climate is excessively windy and wet, told me that *S. fuliginosa* was plentiful down there and that they used to trap and eat them; having no fresh meat, the fowl made a welcome change. While 'roughing' it in the bush, I have myself eaten them more than once, and found the younger birds quite palatable. Some friends, while in Mt. Arthur (Northern Tasmania) at Easter, had the opportunity of seeing both species of *Strepera* there. In the morning a pair was heard on the flats calling with a *clanging note* and very shy; this was *arguta* with the broad white wing bar. At noon my friends reached a small clearing in forest country and came on considerably over one hundred birds in some large trees (*Fagus cunninghami*) at the edge of the clearing; the birds constantly changed from tree to tree, keeping up a 'Kar-kar' note, and fairly tame. Some specimens were obtained and these had *no* white on under tail-coverts; four of the tail-feathers had white tips, the two central feathers. This was the large black *fuliginosa*. Late in the afternoon these birds were on the ground feeding on small black crickets; the specimens obtained, proved on dissection to have consumed, besides the crickets, a large quantity of the berries from native Pepper Trees."

Mr. J. W. Mellor has sent me notes in which the above songs or calls are transposed, stating of this species that "its call is a loud ringing note like the clang of a bell, uttered three times in succession," "the bird is somewhat wary and rather swift on the wing, flying with an undulating motion"; of *arguta* "fairly plentiful, generally seen singly or in pairs, and their notes distinct from those of *S. fuliginosa*, so that I could always be sure of the identity of the bird even if I did not see them."

Miss J. A. Fletcher has observed: "The Black Crow-Shrike (*Strepera fuliginosa*) or, to use its local name, the Black Jay, is truly an inquisitive bird. Wandering about in flocks with loud discordant cries, it is certainly not welcomed when it appears. Bold and curious by nature, these 'Jays' will sit on a fence post, with head cocked on one side, examining with grave deliberation any unusual event or object. A stone thrown at them only evokes one of their 'calls,' and perhaps a removal to the next post. They are very

BLACK CROW-SHRIKE.

fond of fruit, and often work great havoc in the orchards. Not content with a plain diet, they have a liking for chickens or young ducks."

Later, Miss Fletcher wrote: "I spent a week with friends at The Steppes. I was much interested in the Black Magpies, which were regular visitants to the homestead. The original pair came about ten or twelve years ago, and many of their progeny are now about, and are particularly tame in winter, when snow is on the ground, and, food therefore scarce. A pair of the old birds frequently brought their two young ones to the house during my visit. The latter were nearly as big as their parents, but whenever the camera was in evidence they kept under the shadow of a large willow tree overhanging the roof. Sometimes their rather petulant cries would be heard as early as 4 a.m. as they walked about the roof evidently wondering why their tit-bits had not been placed out for them. There were several nests in the gum-trees near the house, where the birds build regularly. My friend stated: 'The tame birds prefer sweet food, such as cake, but when the ground is frozen hard they will eat anything. Sometimes they go into the stable loft and catch mice in the hay. They are very fond of chickens while they are small, and these have to be kept shut up till they are feathered, after which the Magpies will not touch them. They prefer young ducklings to anything, and it is almost impossible to keep them.' As the wild ducks breed in this locality I expect many of the ducklings furnish a meal. Young turkeys are also favourites. In their wild state these Magpies eat a great many common red berries which grow amongst the rocks. . . They do a lot of good killing the grass grubs. On the marshes some miles back, flocks of these Magpies gather, all hunting grubs."

A. G. Campbell wrote of the King Island form: "Most plentiful. Assembles in rowdy mobs along the beach to search among the kelp for sand-hoppers and other dainty morsels. Nesting usually commences about the second week in November, the birds building their conspicuous nests in any convenient scrub. Birds in immature plumage are common, it being probably three years before the rusty brown edgings to the feathers of the back, wings, and particularly the under-surface, give place to the stainless black and deep grey of maturity."

The later recorded measurements thus:

		Total length.	Culmen.	Wing.	Tail.	Tarsus.
<i>Strepera graculina</i>	Vic.	18.75	2.25	10.9	8.3	2.15
<i>cuneicaudata</i>	Vic.	21.5	2.65	10.75	8.75	2.55
<i>fuliginosa</i>	Tas.	19.0	2.75	11.4	8.5	2.5
"	King I.	18.0	2.75	10.2	7.0	2.4
<i>arguta</i>	Tas.	21.0	2.75	11.9	9.8	2.8

THE BIRDS OF AUSTRALIA.

If the measurements quoted for *S. arguta* are not above the average, then that species has the distinction of being the largest of its genus. The Tasmanian form of *S. fuliginosa*, from the measurements given, shows a wing longer by 1.2 inches than the King Island specimen; the former may have been confused with *S. arguta*, or it may be a grade between one species and the other."

I named this King Island form

Strepera fuliginosa colei.

"Differs from *S. f. fuliginosa* in being brownish not black, and in having the white bars to the primaries hardly noticeable"; the majority of the specimens are brownish and I have never seen the "stainless black and deep grey" bird from King Island.



H. Grönvold, del

Witherby & C^o

NEOSTREPERA VERSICOLOR.
(GREY CROW-SHRIKE).

STREPERA VERSICOLOR.

GREY CROW-SHRIKE.

(PLATE 490.)*

CORVUS VERSICOLOR Latham, Index Ornith. Suppl., p. xxv., after May, 1801 : Port Jackson, New South Wales, based on Watling Painting No. 60.

Corvus versicolor Latham, Index Ornith. Suppl., p. xxv., 1801.

Variable Crow Latham, Gen. Synops. Birds, Suppl. II., p. 117, 1801.

Cracticus cuneicaudatus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. V., p. 356, Dec. 14th, 1816 : "Australasie" = New South Wales.

Barita anaphonesis (sic) Temminck et Laugier, Planch. Color. d'Ois., 46^e livr. (Vol. III., text to Barita, pl. 273), May 22nd, 1824 : New South Wales.

Barita griseus Quoy et Gaimard, Froriep's Notizen, Bd. 12, No. 253, col. 166, Dec. 1825 : Port Jackson, New South Wales ; *id.*, Ann. Sci. Nat. Paris, Vol. 5, p. 484, "1825" ; *id.*, Voy. de l'Uranie and Physicienne, Zool. Add., p. 711, June 14th, 1826.

Corvus fuliginosus Brehm, Isis, 1845, heft 5, col. 357, May : New South Wales.

Strepera anaphonensis Gould, Birds Austr., pt. xxxiii. (Vol. II., pl. 45), Dec. 1st, 1848 ; *id.*, Handb. Birds Austr., Vol. I., p. 173, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 584, 1876 (Q.) ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878.

Strepera cinerea Strickland, Ann. Mag. Nat. Hist., Vol. XI., p. 335, May 1st, 1843, ex Gould MS. ; new name for *Corvus versicolor* Latham.

Strepera versicolor Strickland, *ib.* ; Gray, Genera Birds, Vol. II., p. 302, 1846 ; Sharpe, Hist. Coll. Nat. Hist. Brit. Mus., Vol. II., p. 119, 1906 ; Mathews, Handl. Birds Austral., p. 108, 1908 ; Maddison, Emu, Vol. IX., p. 255, 1910 (Vic.) ; Cleland, *ib.*, Vol. XI., p. 94, 1911 (Food).

Strepera arguta Gould, Proc. Zool. Soc. (Lond.), 1846, p. 19, May : Tasmania ; *id.*, Birds Austr., pt. xxv., Vol. II., pl. 44, Dec. 1st, 1846 ; *id.*, Handb. Birds Austr., Vol. I., p. 171, 1865 ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 59, 1877 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 180, 1878 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 239, 1887 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 8, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 59, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 10, 1902 ; McClymont, Emu, Vol. II., p. 98, 1902 ; A. G. Campbell, *ib.*, Vol. IV., pp. 111-118, 1905 ; Mellor, *ib.*, Vol. VI., p. 169, 1907 ; Fletcher, *ib.*, Vol. VII., p. 23, 1907 ; Mathews, Handl. Birds Austral., p. 107, 1908 ; Littler, Handb. Birds Tasm., p. 13, 1910 ; Thompson, Emu, Vol. XI.,

* This Plate is lettered *Neostrepera versicolor*.

THE BIRDS OF AUSTRALIA.

- p. 39, 1911 ; Mellor and White, *ib.*, Vol. XII., p. 164, 1913 : Flinders Island ; Fletcher, *ib.*, Vol. XIII., p. 50, 1913 ; Dove, *ib.*, Vol. XVII., p. 45, 1917 ; Fletcher, *ib.*, Vol. XVIII., p. 100, 1918.
- Strepera plumbea* Gould, Proc. Zool. Soc. (Lond.), 1846, p. 20, May : Western Australia ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 60, 1877 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 8, 1899 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 16, 1902 ; Milligan, Emu, Vol. II., p. 71, 1902 ; Vol. III., p. 16, 1903 ; H. E. Hill, *ib.*, Vol. III., p. 105, 1903 ; Milligan, *ib.*, Vol. IV., pp. 6-8, 1904 ; Mathews, Handl. Birds Austral., p. 108, 1908 ; Gibson, Emu, Vol. IX., p. 72, 1909 ; Crossman, *ib.*, p. 90 ; Whitlock, *ib.*, p. 212, 1910 ; Carter, Emu, Vol. X., p. 298, 1911 ; Orton and Sandland, *ib.*, Vol. XIII., p. 80, 1913 ; S. A. White, *ib.*, Vol. XX., p. 129, 1921 ; Mellor, *ib.*, p. 139 ; Alexander, *ib.*, p. 168.
- Strepera intermedia* Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 59 (June), 1877 : Port Lincoln, South Australia ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 8, 1899.
- Strepera cuneicaudata* Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 60, 1877 ; Ramsay, Tab. List Austr. Birds, p. 4, 1888 ; Hall, Key Birds Austr., p. 8, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 60, 1901 ; North, Austr. Mus. Spec. Cat. No. 1, Vol. I., p. 14, 1902 ; A. G. Campbell, Emu, Vol. II., p. 11, 1902 (Vic.) ; Batey, *ib.*, Vol. VII., p. 4, 1907 (Vic.) ; Cole, *ib.*, Vol. VIII., p. 155, 1909 (Vic.) ; Ingle, *ib.*, Vol. X., p. 122, 1910 (Vic.) ; Stone, *ib.*, Vol. XII., p. 114, 1912 (Vic.).
- Strepera cuneicaudata* subsp. *plumbea* Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 60, 1901.
- Strepera fusca* Ashby, Emu, Vol. V., p. 27, pt. 1, July 1st, 1905 : Eyre's Peninsula, South Australia ; Mellor, *ib.*, Vol. X., p. 35, 1910 ; S. A. White, *ib.*, Vol. XII., pp. 2, 5, 6, 1912.
- Strepera versicolor versicolor* Mathews, Nov. Zool., Vol. XVIII., p. 444, Jan. 31st, 1912.
- Strepera versicolor arguta* Mathews, Nov. Zool., Vol. XVIII., p. 444, Jan. 31st, 1912.
- Strepera versicolor vieillotii* Mathews, *ib.* : (Olinda) Victoria ; Belcher, Birds Geelong, p. 370, 1914 ; Mathews, Austral Av. Rec., Vol. I., p. 64, 1912.
- Strepera versicolor intermedia* Mathews, Nov. Zool., Vol. XVIII., p. 445, Jan. 31st, 1912.
- Strepera versicolor plumbea* Mathews, *ib.*
- Neostrepera versicolor* Mathews, List Birds Austr., p. 316, 1913 ; Alexander, Emu, Vol. XVI., p. 33, 1916 (W.A.).
- Neostrepera versicolor versicolor* Mathews, *ib.*
- Neostrepera versicolor vieillotii* Mathews, *ib.*, p. 316.
- Neostrepera versicolor intermedia* Mathews, *ib.*
- Neostrepera versicolor arguta* Mathews, *ib.*
- Neostrepera versicolor plumbea* Mathews, *ib.*
- Neostrepera versicolor centralia* Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 92, July 7th, 1916 : Everard Ranges, Central Australia.
- DISTRIBUTION. South Queensland, New South Wales, Victoria, South Australia, Central South Australia, South-west Australia, Tasmania.

GREY CROW-SHRIKE.

Adult male. General colour of the upper and under-surface black, inclining to slaty-black on the abdomen and sides of the body; the feathers on the lores and fore-cheeks are bristly in texture, as are also those on the chin; the feathers on the throat have glossy-black shafts, which imparts a more or less streaked appearance; the inner webs of the flight-quills are white on the basal portion of the inner webs and more or less fringed with greyish-white at the tips; tail-feathers also greyish-white at the tips, slightly on the middle feathers, but much more extensively on the lateral ones; under-surface of flight-quills blackish with a patch of white at the base; under tail-coverts white, and the lower aspect of the tail similar to its upper-surface with a slight tendency to greyish-white at the base. Eyes yellow, bill and feet black. Total length 585 mm.; culmen 73, wing 291, tail 230, tarsus 70. Figured. Collected on Mt. Arthur, Tasmania, on the 8th of June, 1915, and is *Strepera arguta* Gould.

Adult male. General colour both on the upper and under-surface dusky lead-grey with blackish shaft-lines; crown of head and fore part of face black, becoming dark smoke-brown on the ear-coverts, the feathers on the lores and fore-part of cheeks bristly in texture; chin black with hair-like tips to the feathers; bastard-wing and primary-coverts black with more or less white at the base and tips of the feathers; flight-quills black tipped with white, and an extensive amount of white on the inner webs which becomes less and confined to the basal portion on the secondaries; some of the outer primaries freckled with pale smoke-brown and white on the outer webs; tail black tipped with white, more extensively on the lateral feathers, the inner-webs of the feathers also white at the base; under-surface of flight-quills blackish, extensively white at the base and fringed with white at the tips—more broadly on the secondaries; under tail-coverts and base of tail white; lower aspect of tail similar to its upper-surface but paler. Eyes bright yellow, feet and bill black. Total length 555 mm.; culmen 73, wing 300, tail 235, tarsus 73. Figured. Collected in the Everard Ranges, Central Australia, on the 14th of August, 1914, and is the type of *Neostrepera versicolor centralia*.

Adult female similar to the male.

Eggs. Three eggs usually form the full clutch for this species, and a typical clutch of three eggs taken at Kurrajong, New South Wales, on the 22nd of September, 1888, has a ground-colour of a pale pinkish-buff well spotted and blotched with purplish-brown, light to dark umber and chestnut. Surface of shell minutely pitted all over, smoothly granular and glossy. The clutch measures 44–45 mm. by 29. Another clutch of three eggs, taken at Ararat, Victoria, on the 8th of September, 1898, has a ground-colour of a pale olive-brown, spotted with pale purplish-brown and umber. Surface of shell somewhat granular and almost devoid of gloss. The clutch measures 42–43 mm. by 29–30.

Nest. Is a large open structure of sticks, lined with bark and grasses, and placed high up in a tree.

The eggs of this species vary from two to three in number for a setting, and are subject to much variation in their size, shape, and general dispositions in the colouring and markings. A clutch of three taken at the Lockier River, near Mingenew, Western Australia, on the 27th of September, 1907, has a dark brownish-buff ground-colour well spotted and blotched, particularly at the larger ends, with scattered markings of very dull purplish-brown, and numerous markings of pale to dark brownish-red, and here and there a small jet-black spot resembling Indian ink. Swollen ovals in shape. Shell granular and smooth, and rather glossy. The clutch measures 42–44 mm. by 29 (*plumbea*).

The nest of this species is a large open substantial structure of sticks, often very neatly built, and lined with fine twigs and dried grasses, and frequently placed high up in the topmost forked branches of a tall tree, or near the end of a horizontal limb (*plumbea*).

THE BIRDS OF AUSTRALIA.

Eggs. A clutch of three eggs is of a pale brownish-buff ground-colour, well spotted and blotched with dull purplish-brown, umber, and pale chestnut. They are very long ovals in shape. Surface of shell rather smooth and glossy. The clutch measures 42-48 mm. by 29-30. Collected on the east side of Marble Range, Eyre's Peninsula, South Australia, on the 31st of August, 1911 (*fusca*).

The nest is made of sticks, neatly lined with dry grass, and placed high up, and often at the top of a slender limb in a tall tree.

Eggs. Clutch three to four eggs, usually three ; and is subject to variation, but not to the extent as exhibited in the *graculina*. A clutch of three of the most usual variety found has a ground-colour of pale purplish-buff, well blotched all over, and chiefly at the larger end of each egg, with purplish-brown, brownish-umber, and dull reddish-brown. Long ovals in shape, and surface of shell smoothly granular and glossy. The clutch measures 42-44 mm. by 29-31. Taken at Circular Head, Tasmania, on the 20th of October, 1887. Another clutch of three, oval in shape, ground-colour of a pale creamy-brown, well spotted with dull markings of purplish-brown, umber, and reddish-brown. Surface of shell smooth and slightly glossy. The clutch measures 45-47 mm. by 31-32. Taken at Landfall, near Launceston, Tasmania, on the 5th of October, 1910 (*arguta*).

The nest is a large open structure, composed of sticks and dead branchlets, and lined with bark, rootlets and grass, and generally placed high up in a large tree.

THE early history of this bird is somewhat like that of some other forms. Described by Latham from a "Watling" drawing the name was not recognised, and then Temminck and Laugier described and figured it and their name was for some time accepted. However Cuvier had mentioned it in the *Règne Animal*, and when Sharpe monographed these as "Crows" in the *Cat. Birds Brit. Mus.*, he accepted Gray's recognition of Vieillot's *Cracticus cuneicaudatus* as referable to this bird and on the score of priority displaced Temminck's name then in use. Sharpe rejected Latham's *Corvus versicolor*, accepted by Strickland from study of the "Lambert" drawings, but thirty years afterwards when he examined the "Watling" drawings he unhesitatingly revived Latham's name. I will go into detail in this matter in the technical portion of this essay.

Latham gave no notes, so that probably Gould's are the earliest as hereafter reproduced.

There are two items of interest in the early history ; after Vieillot had named a specimen brought back by the early French voyageurs it was described by Quoy and Gaimard from a specimen from Port Jackson. They called it a *Barita*, naming it *B. griseus*, describing it as a grey bird, and at some time or other Gould also proposed to call it *Strepera cinerea*, but the name was not used, but only quoted by Strickland when he identified Latham's *Corvus versicolor*. The variation seen in this species was recognised as of specific value by Gould who, working geographically, distinguished two new species, *Strepera arguta*, a larger bird from Tasmania, and *Strepera plumbea*, a darker

GREY CROW-SHRIKE.

form from West Australia. He also named two other species of *Strepera*, viz., *fuliginosa* from Tasmania, and *melanoptera* from South Australia. For some unknown reason he became unsettled on the matter and in the "Hand-book" sank *melanoptera* as a synonym of *arguta*, and *plumbea* as a synonym of *anaphonensis*, both of which are now revived. I quote Gould's remarks.

Under the heading *Strepera anaphonensis* Gould wrote of this species: "Having formerly considered the Grey Crow-Shrikes of New South Wales and Western Australia as distinct species, I assigned to the Swan River bird the specific appellation of *plumbea*; subsequent research has, however, induced me to believe them identical; and if this be really the case, no one species of the genus has so wide a range as the present, extending as it does from New South Wales on the east to Swan River on the west coast. It is, however, more local in its habitat than any of them, at least such is the case in New South Wales; for although it is tolerably abundant at Illawarra, at Camden, and at Bong Bong, it was not seen in any other district that I visited. Gilbert states that in Western Australia he mostly met with it in the thickly wooded forests, singly or in pairs, feeding on the ground with a gait and manners very much resembling the Common Crow. Its flight is easy and long sustained, and it occasionally mounts to a considerable height in the air. The stomach is very muscular, and the food consists of *coleoptera* and the larvæ of insects of various kinds."

Mr. F. E. Howe has written me: "This is a common form in Victoria and is stationary. Their loud double ringing note, twice uttered, is often heard in the hilly country and it is generally given when on the wing. They appear to get their food on the ground and are not altogether honest as far as the orchardist is concerned. In the winter months large families are seen, numbering sometimes as many as twenty birds in a flock. They nest fairly early and fresh eggs are generally seen during September. The clutch is usually three, but during the season of 1907 two seemed to be the full clutch."

Batey has written from near Melbourne: "Of old came down in force about autumn, remained through some winter months, after which it left, supposedly to breed in the forest country. For years it has been an uncommon bird. Saw nest at Newham. This bird has taken to fruit."

C. F. Belcher writes: "The flight of this species, though heavy and lumbering to watch, is not by any means slow. On the wing they utter their strange ringing shriek which sounds like a sudden protest from some piece of badly oiled machinery. They have no other call but this, and, except that they are a little more noisy in the spring, seem to be in equally good voice all through the year."

THE BIRDS OF AUSTRALIA.

Cole has recorded: "Upon dissecting a Grey Crow-Shrike shot a few weeks ago in this district, the stomach contained scores of the large brown bull ant, well known to those who have accidentally rested upon one of their mounds. This bird had collected them while they were moving up and down the trees in quest of food."

Maddison has written from the Upper Goulbourn district: "Flocks of Grey Strepera (*S. versicolor*) and Pied Strepera (*S. graculina*) may always be found in this district, and their nests are generally placed in the most inaccessible trees, though occasionally one may be found in a lower position. The Streperas are ground feeders, their principal food consisting of the large black and red bull ants, though in the fruit season they attack orchards, pecking plums, pears, apples, etc. When on a raid, a sentinel is placed in a high tree, while the others feed below, and at the slightest sign of danger he swoops from his perch with a loud call, and the whole flock rises into the air and flies away."

Ingle wrote from South Gippsland: "These birds are very plentiful at times, but generally all disappear at the approach of the breeding season. Only one nest has been seen in this district."

As long ago as 1905 a report of the South Australian Ornithological Association was published dealing with the *Strepera* family. "Birds from Yorke's Peninsula and Eyre's Peninsula in South Australia were found to be darker brown, with a very great amount of white on the wing, and it was considered that these birds were not *Strepera melanoptera* nor yet *Strepera plumbea*, and it was suggested to designate them *Strepera fusca*, or the Brown Crow-Shrike. Specimens from Quorn, Laura and Mt. Remarkable, in the north of South Australia, resembled *Strepera fusca* in general colour, but the speculum on the wings was not so defined, and not nearly so white."

Five years later Mellor proposed in an orthodox manner *Strepera fusca* as a new species, but the name must date from the first introduction, and it is exactly the same bird as Sharpe thirty years before had named *S. intermedia* from the same locality.

Mr. J. W. Mellor has written me: "These birds I first came across at Stokes in the Koppis Ranges, on Eyre's Peninsula, in September and October, 1899, and I also saw it while encamped at Warunda Creek in October, 1909. It is nowhere plentiful, generally seen in pairs and very shy and wary."

Captain S. A. White later wrote: "*Strepera fusca* was not nearly so numerous as in 1909. The male feeds the female on the nest, and the latter makes the same gurgling and gulping sound as the young Magpie does when being fed. These birds are very wary, and when alarmed will keep just out of gunshot flying on from tree to tree. Every time a flight is made the bird gives

GREY CROW-SHRIKE.

a loud, piping, bell-like call, very clear, yet harsh, and a distinct cry of alarm, at which most other birds and animals take warning. These birds nest, as a rule, very early, the season being somewhat late."

Captain White noted: "This bird comes between *Neostrepera versicolor intermedia* and *N. v. plumbea*, being lighter in plumage than the first named and much darker than *N. v. plumbea*. The bird is much larger than either of these subspecies. Found in the Everard Range, where it was very rare and shy."

Gould wrote: "The *Strepera arguta* is abundantly dispersed over Tasmania, but is more numerous in the central parts of the island than in the districts adjacent to the coast; it also inhabits South Australia, in which country it is more scarce, and all the specimens I have seen are rather smaller in size. I have never seen it in any part of New South Wales that I have visited, neither have specimens occurred in the numerous collections from the west coast that have come under my notice. It is the largest, the boldest, and the most animated species of the genus yet discovered. If not strictly gregarious, it is often seen in small companies of from four to ten, and during the months of winter even a greater number are to be seen congregated together. The districts most suited to its habits are open glades in the forest and thinly timbered hills; although it readily perches on the trees, its natural resort is the ground, for which its form is admirably adapted, and over which it passes with amazing rapidity, either in a succession of leaps or by running. Fruits being but sparingly diffused over Australia, insects necessarily constitute almost its sole food, and of these nearly every order inhabiting the surface of the ground forms part of its diet; grasshoppers are devoured with great avidity. Its note is a loud ringing and very peculiar sound, somewhat resembling the words *clink, clink*, several times repeated, and strongly reminded me of the distant sound of the strokes on a blacksmith's anvil, and hence the term *arguta* appeared to me to be an appropriate specific appellation for this new species."

Mr. Frank Littler has written me: "I have found this bird fairly plentiful in some districts in Tasmania, while in others it is comparatively rare. Grasshoppers, berries and fruits constitute the principal items in the diet. The loud, ringing notes of *clink, clink*, sound very peculiar in the bush when all is still. It is only found in Tasmania (not on the islands of Bass Straits)."

Since Mr. Littler wrote this the species has been recorded from Flinders Island in Bass Straits, but on King Island in the same Straits a form of *S. fuliginosa* only occurs.

McClymont has written: "The brow of the ridge is frequented by large companies of Hill Crow-Shrikes (*Strepera arguta*). There are at times as

THE BIRDS OF AUSTRALIA.

many as 40 birds together ; they come to feed on the berries of the *Exocarpus*. Bush fires necessarily destroy much of the food of fruit-eating birds, and this may be one reason for their seeking food in cultivated areas. The Hill Crow-Shrike filches from the apple orchard, and leaves the trace of his presence in varying degrees of mischief. Sometimes only a puncture is made on the rind of the apple ; generally a large piece of the fruit is scooped out ; rarely is the whole apple eaten excepting the core. When these Crow-Shrikes are flying overhead the white basal portions of the inner webs of the primaries are very conspicuous, and may well serve as marks whereby they can be recognised by others on the ground."

H. Stuart Dove has recorded : " A friend who spends a great deal of time on the mountain plateaux of our island tells me that in a certain valley at high altitude it is the custom of the large ' Black Jay ' (*Strepera arguta*) to flock in the spring of the year in order to feed upon the native berries (*Astroloma pinifolium* and others) which are there in profusion. At this time the usually noisy *Strepera* is very silent, and one does not know the birds are there until right in amongst them. Even then they do not care about moving far, and when forced to fly often do so in silence, although at other times the ' kling-klang ' notes (from which the species derived its name) are very much in evidence. My friend has the idea that the assembly is partly for the purpose of choosing mates for the ensuing season, but I think this is not so ; the probability is that this fine bird once mated, retains his partner for life. It has struck me that there may be some narcotic quality in the berries consumed at this period, which may account for the comparative sluggishness of this usually very alert species."

Miss Fletcher has noted : " During the autumn and winter of 1905 the Hill Crow-Shrikes came to this district (Cleveland) and remained until nearly springtime. They were certainly a great addition to our surroundings, and their merry ' clinking ' calls added a jovial tone to this our dreariest season."

Mr. Tom Carter's notes read : " In your 1912 ' Reference List ' *Strepera plumbea* is given as occurring generally through West Australia. It is mostly a South-western bird, being most numerous in the heavily timbered coastal districts of the extreme South-west. Its northern coastal limit appears to be about the River Murchison, common at Kellerberin and eastwards. In the dense Jarrah, Red Gum, and Karri forests extending along the Vasse, Margaret, Blackwood and Warren Rivers, the piping notes of these birds become very monotonous as the forests resound with them. Besides their usual note they have another, softer and more melodious, which is generally considered to foretell rain or rough weather by the residents. The local names of this species through the South-west is Squeaker, the aboriginal

GREY CROW-SHRIKE.

name Bell. They are very destructive to fruit, especially to figs, which they eat wholesale, and show great cunning and skill when approached with a gun, often manœuvring so that as one walks round a tree in order to get a clear view of the bird in it, the latter will also move so as to keep the trunk or a branch between it and its enemy. They are fairly common about Broome Hill, and on the Pallinup River to the south-east, at which locality I noticed these birds uttering a loud *trumpet* note. The nests are made of sticks, sometimes quite small nests lined with grass, and are usually high up in a tree; but east of Broome Hill, where the large timber decreases, they build in jam trees, 15 or 20 feet off ground. The chief breeding months are August to November. Clutch of eggs three. At Broome Hill, Sept. 8, 1908, two eggs incubated. Oct. 9, 1910. Several clutches of three eggs. Nov. 1, 1908. Fledged young. Dec. 12, 1910, near Lake Muir, fledged young."

Milligan wrote from the Margaret River district: "There were tens of thousands of Leaden Crow-Shrikes . . . this is one of the most numerous birds on the coast. He is locally known, and in fact, everywhere throughout the State, as the Squeaker. In springtime he seeks the coast to feast upon the land snails which are abundant on the coastal hills. In the south-west he is regarded as a 'weather prophet,' and the result of my own observations is that immediately preceding rain he drops his almost ceaseless clamorous call (which gives him his local name) and utters a musical double note at long intervals. On the occasion of my first visit they had not begun to build. On the occasion of the second visit they, in common with the Crows, were committing havoc in the homestead garden among the Cape gooseberries and figs. His aboriginal name is 'Bella.'"

Gibson recorded this species as "Common in the timbered country (between Kalgoorlie and Eucla), especially in the coastal districts; not seen in the open country. Usually seen singly or in pairs, never together in numbers."

Whitlock, writing from the East Murchison, Mid-west Australia, states: "Distinctly rare. I caught sight of a single bird at Bore Well, and also heard the notes of a pair near a likely looking nest in a tall gidgi tree. The situation of this nest was too dangerous to warrant an attempt to rifle it—a weak horizontal branch at a height of 35 feet, with the nest on the extreme end, out of reach of a scoop, and an outcrop of jagged ironstone rocks below. A broken limb in these lonely scrubs is a serious matter, the chances of timely assistance being remote."

Alexander noted it as: "Common at Bremer Bay, 100 miles from Albany on the south-west coast."

Capt. S. A. White on his recent tour in the Margaret River district apparently did not meet with them in "tens of thousands" like Milligan,

THE BIRDS OF AUSTRALIA.

as he wrote: "These birds were occasionally seen and heard, but they did not give one a chance to make any observation for they were very timid and wary."

Alexander recorded from the Perth district: "Resident. Rather scarce in the district, and decidedly local in its habits, almost confined to places in the tuart forest."

Milligan had years before recorded it as "Not common in the Wongan Hills," which he believed at that time to constitute its northern limits.

The description of Latham's *Corvus versicolor* reads:

"*Corvus versicolor*. *C. caeruleo-fuscescens rubro varians, cauda cuneiformi apice alba*.

Variable Crow, *Gen. Syn. Sup.*, II., p. 117, No. 21.

Habitat in *Nova Hollandia*; *speciosa avis & inter majores numeranda*; *corpus fuscescens rubro & caeruleo splendens*; *rostrum validum & pedes nigri*.

Variable Crow. This is a large species, but the true size not certain, as the drawing from whence this description is taken did not identify it; the bill is strong, seemingly less than in the *Crow*, though characteristic of that genus; the plumage dusky-brown, with reflections of lilac and reddish in different lights; bill and legs black. This was met with in *New Holland*, and was the only one of its kind seen there. Mr. *Lambert*."

This description was not recognised until Gray, Strickland and Gould examined the "Lambert" drawings, when the former would not definitely identify it, but Strickland regarded it as definitely of this bird, a view not altogether accepted by Gould.

When Sharpe reported upon the "Watling" drawings he wrote:

"No. 60. Variable Crow, *Lath. Gen. Syn. Suppl.*, II., p. 117.

Corvus versicolor Lath., *Ind. Orn. Suppl.*, p. xxv.

Strepera cuneicaudata (Vieill.) Sharpe, *Cat. B.*, III., p. 60."

This is certainly the same bird as *Cracticus cuneicaudatus* of Vieillot, 1810 (*sic*), so that Latham's name *versicolor* takes precedence. I have, by mistake, omitted Latham's reference in the "Catalogue of Birds," but G. R. Gray seems to have correctly identified the species, of which Watling's picture is the type. His note is: "This representation is about one-quarter the size of the bird the drawing was taken from, and the only one yet seen. I had the skin, therefore the iris is doubtful; however, the general likeness is very good."

It will be noted that in this case the "Lambert" drawing did not give the size, whereas the "Watling" drawing does.

GREY CROW-SHRIKE.

In the meanwhile, a specimen collected by the earliest French voyageurs had been deposited in the Paris Museum and was named *Cracticus cuneicaudatus* by Vieillot. Cuvier also referred to it as "a new species with a wedge tail." Temminck described it under the name *Barita anaphonesis* and stated that the wedge-shaped tail of the specimen in the Paris Museum, mentioned by Cuvier, was due to the specimen being in full moult and that in good plumage the tail was little wedge-shaped. Temminck, owing to his antagonism to Vieillot and all his works, did not mention that the species had been already named by Vieillot.

On account of the authority of Temminck, his name came into use and remained so for fifty years, when Sharpe revived Vieillot's name and used it in the "Catalogue of Birds" in the British Museum, and for the next thirty years Vieillot's name was used. Sharpe then indicated the acceptance of the Lathamian name which seems usable, and this has been used since by myself, and I regard the previously named species *arguta* Gould and *plumbea* Gould as subspecific forms. It is worthy of note again that while the former was always upheld as a species on account of larger size, Gould rejected the latter as a synonym. A rather remarkable coincidence needs mention:

When Sharpe monographed the "Crows" he described as a new species *Strepera intermedia*, a form from Port Lincoln, South Australia. This form was well described and was included in Australian Lists but never recognised. Nearly thirty years after its description it was noticed by South Australian ornithologists that the *Strepera* inhabiting Eyre's Peninsula was different from any other. Ashby wrote me: "It appears to be an intermediate form between *S. plumbea* and *melanoptera*. The plumage is brownish and it has the white patch on the wing." This is almost the same decision as that upon which Sharpe based his species *S. intermedia*, which was not referred to.

In my "Reference List" 1912, I admitted five subspecies thus:

Strepera versicolor versicolor (Latham).

Queensland, New South Wales.

Strepera versicolor arguta Gould.

Tasmania.

Strepera versicolor vieilloti Mathews.

"Differs from *C. v. versicolor* in its darker coloration above and below, with a longer bill. (Olinda) Victoria."

Victoria, South Australia.

Strepera versicolor intermedia Sharpe.

South Australia.

Strepera versicolor plumbea Gould.

West Australia.

THE BIRDS OF AUSTRALIA.

I only amended the generic name to *Neostrepera* in my 1913 "List," but have since added :

Neostrepera versicolor centralia.

"Differs from *N. v. intermedia* (Sharpe) in being lighter, and in having a bigger bill. Everard Ranges, Central Australia."

Central Australia.

INDEX.

NOTE.—The cyphers in **THICK TYPE** refer to the pages where the genus or species is systematically treated. These are placed first.

- acaciæ*, *Sphenura*, 150.
Acanthiza frontalis, 1, 7, 9, 12.
 — *gularis*, 12.
 — *magna*, 42, 43, 46.
 — *magnirostra*, 3.
Acanthornis, 42, 44.
 — *gouldi*, 43.
 — *magnus*, 43.
albicollis, *Sphenura*, 150.
albicruralis, *Gymnorhina*, 338.
albiventer, *Ocypterus*, 244.
albiventris, *Artamus*, 244, 252, 254.
alboscapulatus, *Malurus*, 85.
albovittata, *Leptopteryx*, 257.
albovittatus, *Artamus*, 257.
 —, *Ocypterus*, 257.
alligator, *Colluricincla parvula*, 306, 308.
 —, *Magnamytis*, 212.
Alphacincla, 301.
 — *woodwardi*, 302.
 — *woodwardi assimilis*, 302.
 — — *didimus*, 302, 303.
 — — *woodwardi*, 302.
amabilis, *Leggeornis*, 94, 106.
 —, *Malurus*, 106.
 — *amabilis*, *Leggeornis*, 106, 110.
 — —, *Malurus*, 106, 110.
 — *baroni*, *Leggeornis*, 106, 110.
 — —, *Malurus*, 106, 110.
 — *dulcis*, *Leggeornis*, 106, 109, 110.
 — —, *Malurus*, 106, 110.
 — *rogersi*, *Leggeornis*, 106, 109, 110.
 — —, *Malurus*, 106, 107, 110.
Amytis, 165, 166.
 — *gigantura*, 168, 169, 172, 176, 178, 179, 181, 182, 188.
 — *goyderi*, 168, 169, 205, 206.
 — *housei*, 213.
 — *howei*, 196.
 — *leucopterus*, 86.
 — *macrourus*, 168, 169, 172, 174, 176, 178, 179, 181, 182.
 — *megalura*, 172, 181.
 — *modesta*, 168, 169, 179, 183, 184.
 — *oweni*, 197.
 — *rufa*, 197, 203.
 — *striatus*, 168, 169, 178, 187, 193, 196, 200.
Amytis textilis, 168, 169, 172, 175, 179, 187, 190.
 — *varia*, 168, 172, 174, 180, 182.
 — *whitei*, 196.
Amytornis, 165, 166.
 — *gigantura*, 173.
 — *goyderi*, 206.
 — *housei*, 211, 212, 213.
 — *macrourus*, 173.
 — *megalurus*, 173.
 — *merrotsyi*, 169, 197, 199.
 — *modestus*, 186, 189.
 — *rufa*, 169, 197, 200, 203.
 — *striata*, 197, 200.
 — *striatus*, 193.
 — — *oweni*, 200, 201.
 — *textilis*, 166, 172, 190, 191.
 — — *carteri*, 173.
 — *varia*, 173, 180.
 — *whitei*, 200, 204.
 — *woodwardi*, 209, 210, 211, 212.
anaphonensis, *Barita*, 423, 433.
 —, *Strepera*, 411, 423, 427.
Angroyan, 256.
 — *cyanopterus*, 257, 258.
 — — *cyanopterus*, 258.
 — — *perthi*, 258, 267.
archibaldi, *Tasmanornis humilis*, 38.
argenteus, *Bulestes torquatus*, 386, 396.
 —, *Cracticus*, 384, 395, 397.
 —, — *torquatus*, 385, 396.
arguta, *Neostrepera versicolor*, 424, 434.
 —, *Strepera*, 401, 421, 423, 425, 429, 430.
 —, — *versicolor*, 424, 433.
Artamidæ, 215.
Artamus, 215.
 — *albiventris*, 244, 252, 254.
 — *albovittatus*, 257.
 — *cinereus*, 231, 244, 248, 249, 251, 252.
 — *cyanopterus*, 252, 258, 265.
 — *florenciæ*, 245, 247, 253.
 — *gracilis*, 226, 233.
 — *hypoleucus*, 245, 247, 253.
 — *leucogaster*, 217, 222.
 — *leucopygialis*, 217, 222.
 — *leucorhynchus*, 217, 223.
 — — *harterti*, 224.
 — — *leucopygialis*, 217, 223, 224.

THE BIRDS OF AUSTRALIA.

- Artamus leucorhynchus leucorhynchus*, 223.
 ——— *melvillensis*, 218, 224.
 ——— *musschenbrocki*, 223.
 ——— *parvirostris*, 217, 222, 223.
 ——— *lineatus*, 257.
 ——— *melanops*, 243, 247, 249, 251, 253.
 ——— *florenciae*, 245, 254.
 ——— *hypoleucus*, 245, 254.
 ——— *melanops*, 245, 254.
 ——— *tregellasi*, 245, 246, 254.
 ——— *venustus*, 245, 254.
 ——— *minor*, 268, 269, 270.
 ——— *derbyi*, 269, 271, 273.
 ——— *minor*, 269.
 ——— *personatus*, 226, 229, 230, 233, 238, 239, 241, 265.
 ——— *gracilis*, 226, 234.
 ——— *munna*, 227, 234.
 ——— *personatus*, 226, 234.
 ——— $\times$ *A. superciliosus*, 241.
 ——— *perspicillatus*, 253, 254.
 ——— *phæus*, 231.
 ——— *phæus*, 236, 242.
 ——— *sordidus*, 257, 265, 266.
 ——— *superciliosus*, 230, 231, 232, 235, 238, 240, 241, 265.
 ——— *phæus*, 242.
 ——— *phæus*, 236.
 ——— *superciliosus*, 236, 242.
 ——— $\times$ *A. personatus*, 241.
 ——— *tenebrosus*, 258.
 ——— *tregellasi*, 244, 245.
 ——— *venustus*, 245, 247, 251, 253.
aruensis, *Myiolestes*, 313.
ashbyi, *Malurus cyaneus*, 49, 55, 59.
 ———, *Sericornis maculata*, 21, 27.
 ———, *Strepera graculina*, 407.
assimilis, *Alphacincla woodwardi*, 302.
 ———, *Colluricincla woodwardi*, 302, 303.
 ———, *Leggeornis lamberti*, 96, 97.
 ———, *Malurus*, 64, 95, 97, 100, 101, 109.
 ———, ——— *lamberti*, 95, 101.
australis, *Dasyornis*, 149, 151.
 ———, *Grallina*, 323, 332.
 ———, *Malurus*, 49, 59.
 ———, ——— *cyaneus*, 49, 59.
 ———, *Tanypus*, 320, 323, 331.
 ———, *Vanga*, 384, 394.
Austrartamus, 243.
 ——— *melanops*, 244.
 ——— *florenciae*, 245.
 ——— *hypoleucus*, 245.
 ——— *melanops*, 245.
 ——— *normani*, subsp. nov., 255.
 ——— *tregellasi*, 245.
 ——— *venustus*, 245.

badius, *Turdus*, 278, 282, 287, 288.
balstoni, *Sericornis*, 20, 25, 26.
 ———, ——— *maculata*, 21, 27.

 Banded Wren, 70, 71.
Barita, 373.
 ——— *anaphonensis*, 423, 433.
 ——— *destructor*, 384.
 ——— *griseus*, 423, 426.
 ——— *quoyi*, 366.
 ——— *strepens*, 407.
 ——— *strepera*, 406.
 ——— *tibicen*, 337.
baroni, *Leggeornis amabilis*, 106, 110.
 ———, *Malurus amabilis*, 106, 110.
 Bee-eaters, 261.
 Bell, 431.
 Bell-Magpie, Pied, 411, 412.
Bella, 431.
bernieri, *Leggeornis lamberti*, 96.
 ———, *Malurus*, 95, 101.
 ———, ——— *lamberti*, 96, 101.
 Black and White Grass-Wren, 209.
 ——— ——— Wren, 86, 89.
 Black-backed Butcher-Bird, 398.
 ——— ——— Magpie, 337, 343, 344, 345, 358.
 ——— ——— Wren, 61.
 Black Butcher-Bird, 366, 369.
 Black Crow-Shrike, 418, 420.
 Black-faced Wood-Swallow, 244, 251.
 Black Grass-Wren, 213.
 Black-headed Superb Warbler, 118.
 Black Jay, 419, 430.
 ——— Magpie, 420.
 Black-throated Butcher-Bird, 374.
 ——— ——— Crow-Shrike, 377, 381.
 Black-vented Wood-Swallow, 249.
 Black-winged Crow-Shrike, 413, 416.
 Blue and White Crow, 323, 331, 332.
 Blue-beard, 139.
 Blue-Bill, 259.
 Blue-breasted Wren, 111, 113.
 Blue-winged Grosbeak, 257.
 Blue Wren, 58.
 Bower-Thrush, 319.
boweri, *Bowyeria*, 317.
 ———, *Collyriocinclia*, 316, 317.
 ———, *Malurus*, 117.
 ———, ——— *cruentatus*, 117, 122.
 ———, *Oreoscopus gutturalis*, 40.
 ———, *Pinarolestes*, 317.
 ———, *Ryania melanocephala*, 117, 123.
 ——— *boweri*, *Bowyeria*, 317.
 ——— *kurandi*, *Bowyeria*, 317, 319.
Bowyeria, 316.
 ——— *boweri*, 317.
 ——— ——— *boweri*, 317.
 ——— ——— *kurandi*, 317, 319.
brachyptera, *Sphenura*, 151, 153.
 ——— *brachyptera*, *Sphenura*, 151, 153.
 ——— *longirostris*, *Sphenura*, 154.
 ——— *victoriae*, *Sphenura*, 151, 153.
brachypterus, *Dasyornis*, 150, 151.
 ———, *Turdus*, 149, 150, 151.

INDEX.

- brachypterus brachypterus*, *Dasyornis*, 153.
 — *victoriae*, *Dasyornis*, 153.
brevirostris, *Sericornis*, 3.
 Bristle-Bird, 151, 152, 153.
 —, Lesser Rufous, 163.
 —, Long-billed, 154, 155.
 —, Rufous, 158, 159, 160, 161.
broadbenti, *Maccoyornis*, 158.
 —, *Sphenura*, 157, 158, 159, 162.
 — *broadbenti*, *Maccoyornis*, 158, 164.
 — —, *Sphenura*, 158, 164.
 — *litoralis*, *Maccoyornis*, 158, 164.
 — —, *Sphenura*, 158, 164.
 — *whitei*, *Maccoyornis*, 158, 162, 164.
 — —, *Sphenura*, 158, 164.
 Brown Shrike-Thrush, 290, 292.
brownii, *Malurus*, 116, 118, 121.
brunnea, *Colluricincla*, 277, 290, 292, 293, 294, 303.
 — *caloola*, *Colluricincla*, 290, 294.
 — *melvillensis*, *Colluricincla*, 290, 294.
 — *parryi*, *Colluricincla*, 290, 291, 293, 294.
 — *roebucki*, *Colluricincla*, 290, 294.
brunneopygius, *Sericornis*, 17.
 Buff-bellied Shrike-Thrush, 295, 297, 298.
 Buff-breasted Scrub-Wren, 15.
Bulestes, 334, 335, 383.
 — *cinereus*, 385.
 — *leucopterus*, 385.
 — *mentalis*, 383, 398.
 — — *kempi*, 398.
 — *torquatus*, 383, 384, 385.
 — — *argenteus*, 386, 396.
 — *cinereus*, 386, 396.
 — *colei*, 386, 396.
 — *ethelæ*, 386, 396.
 — *leucopterus*, 386, 396.
 — *olindus*, 386, 396.
 — *torquatus*, 386, 396.
bunya, *Megathiza magnirostris*, 6.
 —, *Sericornis magnirostris*, 3, 5.
 Butcher-Bird, 388, 390.
 — —, Black, 366, 369.
 — —, Black-backed, 398.
 — —, Black-throated, 374.
 — —, Collared, 384.
 — —, Grey, 391.
 — —, Rufous, 369.
 — —, Tasmanian, 390.
 — —, White-winged, 392.
cærulei-capillus, *Malurus*, 100, 101, 111.
caillanus, *Malurus melanotus*, 62, 67, 69.
Caleya, 309.
 — *megarhyncha*, 310.
 — — *cerviniventris*, 311.
 — — *gouldi*, 311.
 — — *griseata*, 311.
 — — *normani*, 311.
 — — *rufogaster*, 311.
callainus, *Malurus*, 61, 64, 65, 66, 67, 68, 69.
Calobathris, 320.
caloola, *Colluricincla brunnea*, 290, 294.
Campbellornis, 225.
 — *personatus*, 225, 226.
 — *personatus gracilis*, 227, 234.
 — — *munna*, 227, 234.
 — — *personatus*, 227, 234.
 — *superciliosus*, 225, 235, 236.
 — — *pallida*, 236, 242.
 — — *phæus*, 236.
 — — *superciliosus*, 236.
 Ca'ruck, 342.
carteri, *Amytornis textilis*, 173.
 —, *Colluricincla rufiventris*, 295, 296, 300.
 —, *Diaphorillas textilis*, 170, 173, 181.
Cassican-Calybé, 373.
cassicus, *Ramphastus*, 373.
Cataphania, 215.
centralia, *Neostrepera versicolor*, 424, 425, 434.
Certhia cinnamomea, 150.
cerviniventris, *Caleya megarhyncha*, 311, 314.
 —, *Colluricincla*, 311, 313.
 —, — *megarhyncha*, 311, 314.
chalybea, *Gracula*, 406.
 Chestnut-mantled Grass-Wren, 198, 199.
Chillin-berin, 328.
cinerea, *Colluricincla*, 276, 278, 288.
 —, *Strepera*, 423, 426.
 —, *Vanga*, 384.
cinereus, *Artamus*, 231, 244, 248, 249, 251, 252.
 —, *Bulestes*, 385.
 —, — *torquatus*, 386, 396.
 —, *Cracticus*, 384, 391, 395.
 —, — *destructor*, 385.
 —, — *torquatus*, 385, 390, 396.
cinnamomea, *Certhia*, 150.
 —, *Sphenura*, 150.
citreigularis, *Sericornis*, 19.
 Clouded Shrike, 384, 393.
colei, *Bulestes torquatus*, 386, 396.
 —, *Cracticus torquatus*, 386, 396.
 —, *Strepera fuliginosa*, 418, 422.
 Collared Butcher-Bird, 384.
 — Crow-Shrike, 389.
 — Scrub-Wren, 40.
colletti, *Cracticus torquatus*, 386, 396.
Colluricincla, 276.
 — *brunnea*, 277, 290, 292, 293, 294, 303.
 — — *caloola*, 290, 294.
 — — *melvillensis*, 290, 294.
 — — *parryi*, 290, 291, 293, 294.
 — — *roebucki*, 290, 294.
 — *cinerea*, 276, 278, 288.
 — *harmonica*, 277, 278, 281, 285, 292.
 — — *harmonica*, 279, 288.
 — — *kingi*, subsp. nov., 289.
 — — *oblita*, 279, 288.
 — — *pallescens*, 279, 288.
 — — *strigata*, 279, 285, 288.

THE BIRDS OF AUSTRALIA.

- Colluricincla harmonica superciliosa*, 280, 289.
 ——— *victoriae*, 279, 288.
 ——— *zamba*, 280, 289.
 ——— *macrorhynchus*, 309.
 ——— *megarhyncha cerviniventris*, 311, 314.
 ——— *gouldi*, 311, 314.
 ——— *griseata*, 311, 314.
 ——— *rufogaster*, 311, 314.
 ——— *parvissima*, 310, 313, 314.
 ——— *parvula*, 305, 306, 309, 310, 312, 315.
 ——— *alligator*, 306, 308.
 ——— *conigravi*, 304, 306, 308.
 ——— *melvillensis*, 306, 308.
 ——— *omissa*, 306, 308.
 ——— *rectirostis*, 279, 282, 287, 288, 289.
 ——— *rufogaster*, 293, 305, 309, 310.
 ——— *rufiventris*, 277, 284, 292, 295, 297.
 ——— *carteri*, 295, 296, 300.
 ——— *murchisoni*, 292, 295, 300.
 ——— *rufiventris*, 295, 300.
 ——— *whitei*, 295, 296, 299, 300.
 ——— *rufogaster*, 309, 310, 312.
 ——— *selbii*, 279, 286, 289, 292.
 ——— *sibila*, 317, 318.
 ——— *strigata*, 278, 287.
 ——— *superciliosa*, 279, 281, 293.
 ——— *turdoides*, 306.
 ——— *woodwardi*, 301, 302.
 ——— *assimilis*, 302, 303.
Colluriocinclla, 276.
 ——— *cerviniventris*, 311, 313.
Collurisoma, 276.
Collyriocichla, 276.
Collyriocinclla boweri, 316, 317.
 ——— *harmonica halmaturina*, 279, 284, 288, 289.
 ——— *pallidirostris*, 290, 293.
Conigravea, 304.
 ——— *parvula*, 306.
 ——— *conigravi*, 306, 308.
 ——— *omissa*, 306, 308.
 ——— *parvula*, 306, 308.
conigravi, *Colluricincla parvula*, 304, 306, 308.
 ———, *Conigravea parvula*, 306, 308.
coongani, *Cracticus nigrogularis*, 375, 382.
Coracias strepera, 406, 408.
 ——— *tibicen*, 336, 337, 341, 342, 355.
coraya, *Sphenura*, 149.
 ———, *Turdus*, 149, 150.
coronata, *Rosina*, 125.
 ——— *coronata*, *Rosina*, 125, 129.
 ——— *rogersiana*, *Rosina*, 129.
coronatus, *Malurus*, 124, 125, 127, 128.
 ——— *macgillivrayi*, *Malurus*, 125, 126, 129.
 ———, *Rosina*, 125, 129.
Coronica, 401.
 ——— *fuliginosa*, 401, 418.
 ——— *strepera*, 406.
Corvus cyanoleucus, 320, 323, 331, 332,
 ——— *fuliginosus*, 423.
Corvus graculinus, 401, 406, 408.
 ——— *strepera*, 406.
 ——— *versicolor*, 423, 426, 432.
Cracticidæ, 334.
Cracticus, 334, 335, 373.
 ——— *argenteus*, 384, 395, 397.
 ——— *cinereus*, 384, 391, 395.
 ——— *cuneicaudatus*, 423, 432, 433.
 ——— *cyanoleucus*, 323.
 ——— *destructor*, 385, 389, 391, 394.
 ——— *cinereus*, 385.
 ——— *fuliginosa*, 418.
 ——— *hypoleucos*, 350, 353.
 ——— *hypoleucus dorsalis*, 351, 362.
 ——— *hypoleucus*, 351, 362.
 ——— *intermedius*, 351, 362.
 ——— *leuconotus*, 351, 362.
 ——— *leucopterus*, 385, 391, 394, 395.
 ——— *mentalis*, 370, 398, 399, 400.
 ——— *kempii*, 398, 400.
 ——— *nigrigularis picatus*, 375.
 ——— *nigrogularis*, 374, 377, 378, 379, 391.
 ——— *coongani*, 375, 382.
 ——— *inkermani*, 375, 381.
 ——— *kalgoorli*, 375, 376, 381.
 ——— *mellori*, 375, 381.
 ——— *nigrogularis*, 375, 381.
 ——— *picatus*, 375, 381.
 ——— *territori*, 375, 382.
 ——— *tormenti*, 375, 381.
 ——— *picatus*, 374, 378.
 ——— *quoyi*, 366, 368.
 ——— *jardini*, 367, 371.
 ——— *quoyi*, 371.
 ——— *rufescens*, 366, 371.
 ——— *spaldingi*, 367, 371.
 ——— *tunneyi*, 366, 370, 371.
 ——— *robustus*, 375.
 ——— *rufescens*, 366, 370, 377.
 ——— *spaldingi*, 365, 366, 370.
 ——— *strepera*, 401.
 ——— *streperus*, 406.
 ——— *tibicen*, 337.
 ——— *intermissus*, 338, 348.
 ——— *longirostris*, 338, 349.
 ——— *terræreginæ*, 338, 348.
 ——— *tibicen*, 338, 348.
 ——— *torquatus*, 384, 390, 395.
 ——— *argenteus*, 385, 396.
 ——— *cinereus*, 385, 390, 396.
 ——— *colei*, 386, 396.
 ——— *colletti*, 386, 396.
 ——— *ethelæ*, 385, 386, 396.
 ——— *leucopterus*, 385, 396.
 ——— *olindus*, 385, 386, 396.
 ——— *torquatus*, 385, 396.
 ——— *varius*, 374.
 Crow, Blue and White, 323, 331, 332.
 ———, Variable, 423, 432.
 Crow-Shrike, 431.

INDEX.

- Crow-Shrike, Black, 418, 420.
 ———, Black-throated, 377, 381.
 ———, Black-winged, 413, 416.
 ———, Collared, 389.
 ———, Grey, 423, 427, 428.
 ———, Kangaroo Island, 416.
 ———, Pied, 406, 411.
 ———, Piping, 344.
cruentata, *Ryania melanocephala*, 117, 122.
cruentatus, *Malurus*, 116, 118, 121.
 ———, ——— *melanocephalus*, 117, 122.
 ——— *boweri*, *Malurus*, 117, 122.
cuneicaudata, *Strepera*, 420, 424, 426, 432.
 ——— *plumbea*, *Strepera*, 424.
cuneicaudatus, *Cracticus*, 423, 432, 433.
curvirostris, *Lanius*, 394.
cyanea, *Motacilla*, 47, 48, 51.
cyaneus, *Malurus*, 47, 48, 52, 59, 60.
 ——— *ashbyi*, *Malurus*, 49, 55, 59.
 ——— *australis*, *Malurus*, 49, 59.
 ——— *cyaneus*, *Malurus*, 49, 59.
 ——— *cyanochlamys*, *Malurus*, 49, 59, 60.
 ——— *elizabethæ*, *Malurus*, 49, 55, 59.
 ——— *fletcheræ*, *Malurus*, 49, 60.
 ——— *henriettæ*, *Malurus*, 49, 55, 59.
 ——— *leggei*, *Malurus*, 49, 54, 55, 59.
 ——— *samueli*, *Malurus*, 50, 55, 60.
cyanochlamys, *Malurus*, 49, 59.
 ———, ——— *cyaneus*, 49, 59, 60.
cyanoleuca, *Grallina*, 323, 332.
 ——— *cyanoleuca*, *Grallina*, 324.
 ——— *neglecta*, *Grallina*, 324, 333.
cyanoleucus, *Corvus*, 320, 323, 331, 332.
 ———, *Cracticus*, 323.
cyanoptera, *Loxia*, 256, 257, 266.
cyanopterus, *Angroyan*, 257, 258.
 ———, *Artamus*, 252, 258, 265.
 ———, *Pseudartamus*, 257, 258.
 ——— *cyanopterus*, *Angroyan*, 258.
 ——— *perthi*, *Angroyan*, 258, 267.
cyanotus, *Hallornis*, 76, 78, 81, 84.
 ———, *Hallornis leuconotus*, 76, 83.
 ———, *Malurus*, 74, 75, 77, 79.
 ——— *cyanotus*, *Hallornis*, 76.
 ———, ———, *Malurus*, 75, 82.
 ——— *diamantina*, *Malurus*, 76, 82.
 ——— *exsul*, *Hallornis*, 76.
 ———, ———, *Malurus*, 76, 82.

Dasyornis, 149, 150.
 ——— *australis*, 149, 151.
 ——— *brachypterus*, 150, 151.
 ———, ——— *brachypterus*, 153.
 ———, ——— *victoriæ*, 153.
 ——— *longirostris*, 150, 154.
 ———, ——— *longirostris*, 156.
 ———, ——— *mastersi*, 156.
 ——— *striatus*, 193.
dawsonianus, *Leggeornis lamberti*, 96.
 ———, *Malurus lamberti*, 96, 102.

derbyi, *Artamus minor*, 269, 271, 273.
 ———, *Micrartamus minor*, 269, 273.
destructor, *Barita*, 384.
 ———, *Cracticus*, 385, 389, 391, 394.
 ———, *Vanga*, 393.
 ——— *cinereus*, *Cracticus*, 385.
Devisornis, 85.
diamantina, *Hallornis leuconotus*, 83.
 ———, *Malurus cyanotus*, 76, 82.
Diaphorillas, 165, 166, 167.
 ——— *goyderi*, 166, 169, 206.
 ——— *housei*, 166, 213.
 ——— *howei*, 193.
 ——— *inexpectatus*, 168, 171, 186, 187.
 ———, ——— *inexpectatus*, 189.
 ———, ——— *myall*, 189.
 ——— *merrotsyi*, 170, 171, 198.
 ——— *modestus*, 171, 183, 185.
 ———, ——— *indulkanna*, 170, 185.
 ———, ——— *modestus*, 170, 185.
 ———, ——— *obscurior*, subsp. nov., 170, 184, 185.
 ——— *myall*, 186.
 ——— *purnelli*, 168, 170, 171, 179, 190.
 ——— *striata rufa*, 200, 204.
 ——— *striatus*, 171, 193.
 ———, ——— *howei*, 165, 169, 170, 193, 194, 197, 198.
 ———, ——— *oweni*, 169, 200.
 ———, ——— *striatus*, 169, 170, 198.
 ———, ——— *whitei*, 169, 200.
 ——— *textilis*, 166, 171, 172, 176, 190, 191.
 ———, ——— *carteri*, 170, 173, 181.
 ———, ——— *giganturus*, 169, 170, 173.
 ———, ——— *indulkanna*, 169, 183, 184, 185.
 ———, ——— *inexpectatus*, 169, 186, 188.
 ———, ——— *macrourus*, 169, 170, 173, 181.
 ———, ——— *megalura*, 170.
 ———, ——— *merrotsyi*, 198.
 ———, ——— *modestus*, 169, 183, 185.
 ———, ——— *morgani*, 169, 170, 173, 182.
 ———, ——— *myall*, 169, 186, 189.
 ———, ——— *purnelli*, 169, 185, 190, 191, 192.
 ———, ——— *textilis*, 169, 170, 173, 181.
 ———, ——— *varia*, 169, 170, 182.
 ——— *whitei*, 171, 200.
 ———, ——— *oweni*, 170, 204.
 ———, ——— *rufus*, 171, 204.
 ———, ——— *whitei*, 170, 204.
 ——— *woodwardi*, 166, 211.
didimus, *Alphacincla woodwardi*, 302, 303.
 Dirk Hartog Emu-Wren, 140.
 ———, ——— Island Scrub-Wren, 25, 27.
dorotheæ, *Magnamytis*, 209, 212.
 ———, ——— *woodwardi*, 209, 210.
dorsalis, *Cracticus hypoleuca*, 351, 362.
 ———, *Gymnorhina*, 336, 346, 347, 351, 352, 358, 363, 364.
 ———, ——— *hypoleucus*, 351.
 ———, *Malurus*, 116, 121.
 ———, *Sylvia*, 116, 118, 121.

THE BIRDS OF AUSTRALIA.

- dulcis*, *Leggeornis amabilis*, 106, 109, 110.
 —, *Malurus*, 106, 109.
 —, — *amabilis*, 106, 110.
- Eastern Grass-Wren, 186.
edouardi, *Malurus*, 85, 86, 88, 90, 91.
 —, — *leucopterus*, 86.
 —, *Nesomalurus leucopterus*, 86, 93.
elegans, *Leggeornis*, 94, 103.
 —, *Malurus*, 103.
 — *elegans*, *Leggeornis*, 105.
 — *warreni*, *Leggeornis*, 103.
elizabethæ, *Malurus*, 49, 53, 58, 59, 60.
 —, — *cyaneus*, 49, 55, 59.
emitis, *Malurus*, 132.
 Emu-Bird, 135.
 — - Wren, 131, 135.
 — - —, Dirk Hartog, 140.
 — - —, Mallee, 142.
 — - —, Rufous-crowned, 146.
 — - —, Westralian, 140.
erythroptera, *Sphenura*, 150.
ethelæ, *Bulestes torquatus*, 386, 396.
 —, *Cracticus torquatus*, 385, 386, 396.
exsul, *Hallornis cyanotus*, 76.
 —, — *leuconotus*, 76, 82, 83.
 —, *Malurus cyanotus*, 76, 82.
eylandtensis, *Gymnorhina tibicen*, 338, 349.
Eyramytis, 166, 167, 205.
 — *goyderi*, 167, 171, 183, 184, 206.
eyrei, *Leggeornis lamberti*, 96, 102.
- Fern-Wren, 40.
fimbriata, *Motacilla*, 131.
finki, *Gymnorhina tibicen*, 338, 349.
fletcheræ, *Malurus cyaneus*, 49, 60.
flindersi, *Sericornis*, 31, 37.
 —, *Tasmanornis humilis*, 31, 32, 37.
florenciæ, *Artamus*, 245, 247, 253.
 —, — *melanops*, 245.
 —, *Austrartamus melanops*, 245.
 Flycatcher, Orange-rumped, 116, 118.
Fringilla macroura, 150.
fringillaris, *Sphenura*, 150.
frontalis, *Acanthiza*, 1, 7, 9, 12.
 —, *Sericornis*, 2, 7, 11, 14, 31, 37.
 —, *Sphenura*, 150.
 — *frontalis*, *Sericornis*, 7, 13.
 — *harterti*, *Sericornis*, 8, 13.
 — *lævigaster*, *Sericornis*, 13, 15.
 — *longirostris*, *Sericornis*, 7, 9, 13.
 — *minimus*, *Sericornis*, 13, 17.
 — *rosinæ*, *Sericornis*, 8, 10.
 — *wyldei*, *Sericornis*, 13.
fuliginosa, *Coronica*, 401, 418.
 —, *Cracticus*, 418.
 —, *Strepera*, 405, 418, 420, 421, 427, 429.
 — *colei*, *Strepera*, 418, 422.
 — *fuliginosa*, *Strepera*, 418.
fuliginosus, *Corvus*, 423.
- fusca*, *Strepera*, 415, 416, 424, 428.
fuscatus, *Ocypterus*, 269.
fuscus, *Ocypterus*, 269.
- Gallina*, 320.
 — *melanoleuca*, 323, 331.
geraldtonensis, *Sericornis maculatus*, 21, 27.
germaini, *Malurus melanotus*, 62, 69.
gigantura, *Amytis*, 168, 169, 172, 176, 178, 179, 181, 182, 188.
 —, *Amytornis*, 173.
giganturus, *Diaphorillas textilis*, 169, 170, 173.
gouldi, *Acanthornis*, 43.
 —, *Caleya megarhyncha*, 311, 314.
 —, *Colluricincla megarhyncha*, 311, 314.
 —, *Malurus*, 49, 59, 60.
 —, *Myiolestes*, 310, 313.
gouldianus, *Sericornis maculatus*, 28.
goyderi, *Amytis*, 168, 169, 205, 206.
 —, *Amytornis*, 206.
 —, *Diaphorillas*, 166, 169, 206.
 —, *Eyramytis*, 167, 171, 183, 184, 206.
gracilis, *Artamus*, 226, 233.
 —, — *personatus*, 226, 234.
 —, *Campbellornis personatus*, 227, 234.
Gracula chalybea, 406.
 — *picata*, 323, 332.
 — *strepera*, 406.
graculina, *Strepera*, 405, 406, 421, 428.
 — *ashbyi*, *Strepera*, 407, 412.
 — *graculina*, *Strepera*, 407, 412.
 — *magnirostris*, *Strepera*, 407, 408, 412.
 — *riordani*, *Strepera*, 412.
 — *robinsoni*, *Strepera*, 407, 412.
graculinus, *Corvus*, 401, 406, 408.
 Grakle, Pied, 323, 331, 332.
Grallina, 320.
 — *australis*, 323, 332.
 — *cyanoleuca*, 323, 332.
 — — *cyanoleuca*, 324.
 — — *neglecta*, 324, 333.
 — *melanoleuca*, 320.
 — *picata*, 323, 332.
Grallipes, 320.
 Grasshopper Birds, 240.
 — - Wren, 172.
 — - —, Black, 213.
 — - —, — and White, 209.
 — - —, Chestnut-mantled, 198, 199.
 — - —, Eastern, 186.
 — - —, Large-tailed, 179.
 — - —, Rufous, 200.
 — - —, Striated, 193, 202, 203.
 — - —, Thick-billed, 183.
 — - —, Uniform, 190.
 — - —, White-chested, 209.
 — - —, White-throated, 211.
 Grey-breasted Wood-Swallow, 249, 251.
 — Butcher-Bird, 391.
 — Crow-Shrike, 423, 427, 428,

INDEX.

- Grey Shrike-Thrush, 278, 285.
 — Strepera, 428.
griseata, *Caleyia megarhyncha*, 311, 314.
 —, *Colluricincla megarhyncha*, 311, 314.
griseatus, *Myiolestes*, 310, 313.
griseus, *Barita*, 423, 426.
 Grosbeak, Blue-winged, 257.
gularis, *Acanthiza*, 12.
 —, *Malurus*, 131.
 —, *Sericornis*, 31, 37.
 —, *Tasmanornis humilis*, 31, 32, 37.
gutturalis, *Oreoscopus*, 40.
 —, *Sericornis*, 39, 40.
 — *boweri*, *Oreoscopus*, 40.
Gymnorhina, 334, 335, 336.
 — *albicruralis*, 338.
 — *dorsalis*, 336, 346, 347, 351, 352, 358, 363, 364.
 — *hyperleuca*, 350.
 — *hypoleuca*, 336, 350, 353, 362, 363, 364.
 — — *dorsalis*, 351.
 — — *hypoleuca*, 351.
 — — *intermedia*, 351.
 — — *leuconota*, 351.
 — *leuconota*, 353, 355, 356, 357, 362, 363, 364.
 — — $\times$ *G. tibicen*, 345, 355, 362.
 — *longirostris*, 337, 346, 347.
 — *organicum*, 350, 353.
 — *terræreginæ*, 334, 345.
 — *tibicen*, 336, 337, 342, 343, 345, 347, 356, 357, 362, 363.
 — — *eylandtensis*, 338, 349.
 — *finki*, 338, 349.
 — — *intermissa*, 338.
 — — *longirostris*, 338, 346, 348, 364.
 — — *terræreginæ*, 338, 363.
 — — *tibicen*, 338, 363.
 — — $\times$ *G. leuconota*, 345, 355, 362.
Gymnorhina, 336.
Hallornis, 74.
 — *cyanotus*, 76, 78, 81, 84.
 — — *cyanotus*, 76.
 — — *exsul*, 76.
 — *leuconotus*, 75, 76, 78, 84.
 — — *cyanotus*, 76, 83.
 — — *diamantina*, 83.
 — — *exsul*, 76, 82, 83.
 — — *leuconotus*, 76, 82, 83.
 — — *perplexus*, 76, 83.
 — — *wongani*, subsp. nov., 83.
halmaturina, *Collyriocincla harmonica*, 279, 284, 288, 289.
 —, *Sericornis*, 21.
 —, *Stipiturus malachurus*, 132, 144, 145.
 —, *Strepera*, 413.
 —, — *melanoptera*, 413, 417.
 Harmonic Thrush, 278.
harmonica, *Colluricincla*, 277, 278, 281, 285, 292.
 — *halmaturina*, *Collyriocincla*, 279, 284, 288, 289.
 — *harmonica*, *Colluricincla*, 279, 288.
 — *kingi*, *Colluricincla*, 289.
 — *oblita*, *Colluricincla*, 279, 288.
 — *pallens*, *Colluricincla*, 279, 288.
 — *strigata*, *Colluricincla*, 279, 285, 288.
 — *superciliosa*, *Colluricincla*, 280, 289.
 — *victoriae*, *Colluricincla*, 279, 289.
 — *zamba*, *Colluricincla*, 280, 289.
harmonicus, *Turdus*, 276, 278, 282, 287.
 Harmonious Thrush, 281.
harterti, *Artamus leucorhynchus*, 224.
 —, *Sericornis frontalis*, 8, 13.
 —, — *parvula*, 7, 12.
hartogi, *Leggeornis lamberti*, 96, 102.
 —, *Sericornis maculatus*, 21, 27.
 —, *Stipiturus malachurus*, 132, 134, 144, 145.
henriettae, *Malurus cyaneus*, 49, 55, 59.
herbertoni, *Sericornis lævigaster*, 16.
 —, — *parvula*, 13, 15.
 Hook-billed Shrike, 394.
housei, *Amytis*, 213.
 —, *Amytornis*, 211, 212, 213.
 —, *Diaphorillas*, 166, 213.
 —, *Magnamytis*, 167, 213.
howei, *Amytis*, 196, 197.
 —, *Diaphorillas*, 193.
 —, — *striatus*, 169, 193, 194, 197, 198.
 —, *Megathiza magnirostris*, 6.
 —, *Mytisa striata*, 193.
 —, *Sericornis magnirostris*, 3, 5.
 —, *Strepera melanoptera*, 413, 417.
 Hircine Magpie, 409.
humilis, *Sericornis*, 1, 12, 30, 31, 37.
 —, *Tasmanornis*, 31.
 — *archibaldi*, *Tasmanornis*, 38.
 — *flindersi*, *Tasmanornis*, 31, 32, 37.
 — *gularis*, *Tasmanornis*, 31, 32, 37.
 — *humilis*, *Tasmanornis*, 31, 37.
 — *insularis*, *Tasmanornis*, 31, 37.
 — *tregellasi*, *Tasmanornis*, 31, 37.
hyperleuca, *Gymnorhina*, 350.
hypoleuca, *Gymnorhina*, 336, 350, 353, 362, 363, 364.
 — *dorsalis*, *Cracticus*, 351, 362.
 — *hypoleuca*, *Cracticus*, 351, 362.
 — *intermedia*, *Cracticus*, 351, 362.
 — *leuconota*, *Cracticus*, 351, 362.
hypoleucos, *Cracticus*, 350, 353.
hypoleucus, *Artamus*, 245, 247, 253.
 —, — *melanops*, 245.
 —, *Austrartamus melanops*, 245.
 —, *Malurus*, 106, 108.
 — *dorsalis*, *Gymnorhina*, 351.
 — *hypoleucus*, *Gymnorhina*, 351.
 — *intermedius*, *Gymnorhina*, 351.
 — *leuconotus*, *Gymnorhina*, 351.

THE BIRDS OF AUSTRALIA.

- Iarra-wong-nang*, 342.
indulkanna, *Diaphorillas modestus*, 170, 185.
 —, — *textilis*, 169, 183, 184, 185.
inexpectatus, *Diaphorillas*, 168, 171, 186, 187.
 —, — *inexpectatus*, 189.
 —, — *textilis*, 169, 186, 188.
 — *myall*, *Diaphorillas*, 189.
inkermanni, *Cracticus nigrogularis*, 375, 381.
inopinatus, *Sericornis maculatus*, 28.
insularis, *Sericornis*, 31, 32.
 —, — *longirostris*, 31.
 —, *Tasmanornis humilis*, 31, 37.
intermedia, *Cracticus hypoleuca*, 351, 362.
 —, *Neostrepera versicolor*, 424, 429, 434.
 —, *Strepera*, 416, 424, 433.
 —, — *versicolor*, 424, 433.
intermedius, *Gymnorhina hypoleucus*, 351.
 —, *Stipiturus malachurus*, 132, 145.
intermissa, *Cracticus tibicen*, 338, 348.
 —, *Gymnorhina tibicen*, 338.
- Jackass, 392.
 —, Whistling, 390.
jardini, *Cracticus quoyi*, 367, 371.
 —, *Melloria quoyi*, 367, 372.
 Jay, Black, 419, 430.
- kalgoorli*, *Cracticus nigrogularis*, 375, 376, 381.
 Kangaroo Island Crow-Shrike, 416.
 Karrock, 331.
keri, *Megathiza*, 1.
 —, — *magnirostris*, 6.
 —, *Sericornis magnirostris*, 1, 3, 4, 5, 6.
kimberleyi, *Magnamytis*, 213, 214.
kingi, *Colluricincla harmonica*, 289.
kurandi, *Bowyeria boweri*, 317, 319.
- lævigaster*, *Sericornis*, 2, 12, 14, 15.
 —, — *frontalis*, 13, 15.
 —, — *lævigaster*, 16.
 —, — *longirostris*, 13, 15.
 —, — *parvula*, 13, 15.
 — *herbertoni*, *Sericornis*, 16.
 — *lævigaster*, *Sericornis*, 16.
 — *tweedi*, *Sericornis*, 16.
lævigastrea, *Sericornis*, 15.
lamberti, *Leggeornis*, 94, 95, 96, 97.
 —, — *lamberti*, 96.
 —, *Malurus*, 94, 95, 97, 98, 102.
 — *assimilis*, *Leggeornis*, 96, 97.
 — —, *Malurus*, 95, 101.
 — *bernieri*, *Leggeornis*, 96.
 — —, *Malurus*, 96, 101.
 — *dawsonianus*, *Leggeornis*, 96.
 — —, *Malurus*, 96, 102.
 — *eyrei*, *Leggeornis*, 96, 102.
 — *hartogi*, *Leggeornis*, 96, 102.
 — *lamberti*, *Leggeornis*, 96.
 — —, *Malurus*, 95, 101.
 — *mastersi*, *Leggeornis*, 96.
- lamberti mastersi*, *Malurus*, 96, 101.
 — *morgani*, *Leggeornis*, 96, 97.
 — —, *Malurus*, 96, 101.
 — *mungi*, *Leggeornis*, 96.
 — —, *Malurus*, 96, 101.
 — *occidentalis*, *Leggeornis*, 96, 99.
 — —, *Malurus*, 96, 101.
 Lambert's Wren, 98.
Langraien, 215.
Lanius curvirostris, 394.
 — *leucorhynchus*, 215.
 — *leucorhynchus*, 215, 217.
 — *leucorhynchus*, 215, 217.
 — *saturninus*, 278.
 — *torquatus*, 383, 384, 393, 394.
 Large-billed Scrub-Wren, 3.
 —-tailed Grass-Wren, 179.
lathamii, *Sericornis*, 5.
 Leaden Crow-Shrikes, 431.
leggei, *Malurus cyaneus*, 49, 54, 55, 59.
Leggeornis, 94.
 — *amabilis*, 94, 106.
 — — *amabilis*, 106, 110.
 — — *barroni*, 106, 110.
 — — *dulcis*, 106, 109, 110.
 — — *rogersi*, 106, 109, 110.
 — *elegans*, 94, 103.
 — — *elegans*, 105.
 — — *warreni*, 103.
 — *lamberti*, 94, 95, 96, 97.
 — — *assimilis*, 96, 97.
 — — *bernieri*, 96.
 — — *dawsonianus*, 96.
 — — *eyrei*, 96, 102.
 — — *hartogi*, 96, 102.
 — — *lamberti*, 96.
 — — *mastersi*, 96.
 — — *morgani*, 96, 97.
 — — *mungi*, 96.
 — — *occidentalis*, 96, 99.
 — *pulcherrimus*, 94, 111.
 — — *pulcherrimus*, 111, 114.
 — — *stirlingi*, 111, 114.
Leptopteryx, 215.
 — *albovittata*, 257.
 — *minor*, 269.
 Lesser Rufous Bristle-Bird, 163.
leucogaster, *Artamus*, 217, 222.
leuconota, *Cracticus hypoleuca*, 351, 362.
 —, *Gymnorhina*, 353, 355, 356, 357, 362, 363, 364.
 —, — × *G. tibicen*, 345, 355, 362.
leuconotus, *Gymnorhina hypoleucus*, 351.
 —, *Hallornis*, 75, 76, 78, 84.
 —, *Malurus*, 74, 75, 77, 79, 81, 82.
 — *cyaneus*, *Hallornis*, 76, 82, 83.
 — *diamantina*, *Hallornis*, 83.
 — *exsul*, *Hallornis*, 76, 82, 83.
 — *leuconotus*, *Hallornis*, 76, 82, 83.
 — —, *Malurus*, 76, 82.

INDEX.

- lenconotus perplexus*, *Hallornis*, 76, 83.
 ———, *Malurus*, 76, 82.
 ——— *wongani*, *Hallornis*, 83.
leucopterus, *Amytis*, 86.
 ———, *Bulestes*, 385.
 ———, ——— *torquatus*, 386, 396.
 ———, *Cracticus*, 385, 391, 394, 395.
 ———, ——— *torquatus*, 385, 396.
 ———, *Malurus*, 75, 77, 86, 87, 88, 89.
 ———, *Nesomalurus*, 86.
 ——— *edouardi*, *Malurus*, 86.
 ———, ———, *Nesomalurus*, 86, 93.
 ——— *leucopterus*, *Malurus*, 86.
 ———, ———, *Nesomalurus*, 86, 93.
leucopygialis, *Artamus*, 217, 222.
 ———, ——— *leucorhynchus*, 217, 223, 224.
leucorhynchus, *Lanius*, 215.
leucorhynchus, *Artamus*, 217, 223.
 ———, ——— *leucorhynchus*, 223.
 ———, *Lanius*, 215, 217.
 ——— *harterti*, *Artamus*, 224.
 ——— *leucopygialis*, *Artamus*, 217, 223, 224.
 ——— *leucorhynchus*, *Artamus*, 223.
 ——— *melvillensis*, *Artamus*, 218, 224.
 ——— *musschenbrocki*, *Artamus*, 223.
 ——— *parvirostris*, *Artamus*, 217, 222, 223.
leucoryn, *Lanius*, 215, 217.
lineatus, *Artamus*, 257.
litoralis, *Maccoyornis broadbenti*, 158, 164.
 ———, *Sphenura*, 158, 164.
 ———, ——— *broadbenti*, 158, 164.
 Little Scrub-Wren, 17.
 ——— Shrike-Thrush, 306.
 ——— Wood-Swallow, 269, 270, 271, 272.
littleri, *Stipiturus malachurus*, 132, 143, 145.
 Long-billed Bristle-Bird, 154, 155.
 ——— -tailed Wren, 60.
longicaudus, *Malurus*, 48, 52, 59.
longirostris, *Cracticus tibicen*, 338, 346, 349.
 ———, *Dasyornis*, 150, 154.
 ———, *Gymnorhina*, 337, 346, 347.
 ———, ——— *tibicen*, 338, 348, 364.
 ———, *Saxicola*, 7, 9.
 ———, *Sericornis frontalis*, 7, 9, 13.
 ———, *Sphenura*, 154.
 ———, ——— *brachyptera*, 154.
 ——— *harterti*, *Sericornis*, 7.
 ——— *insularis*, *Sericornis*, 31.
 ——— *lævigaster*, *Sericornis*, 13, 15.
 ——— *longirostris*, *Dasyornis*, 156.
 ———, ———, *Sericornis*, 7.
 ——— *mastersi*, *Dasyornis*, 156.
 ———, ———, *Sphenura*, 154.
 ——— *minimus*, *Sericornis*, 13, 17.
 ——— *parvulus*, *Sericornis*, 7.
 ——— *rosinæ*, *Sericornis*, 7.
 ——— *wyldei*, *Sericornis*, 8.
 Lovely Wren, 106.
 ——— Wren-Warblers, 108.
Loxia cyanoptera, 256, 257, 266.
Maccoyornis, 157.
 ——— *broadbenti*, 158.
 ———, ——— *broadbenti*, 158, 164.
 ———, ——— *litoralis*, 158, 164.
 ———, ——— *whitei*, 158, 162, 164.
macgillivrayi, *Malurus coronatus*, 125, 126.
 ———, *Rosina coronata*, 125, 129.
macrorhynchus, *Colluricincla*, 309.
macroura, *Fringilla*, 150.
macrourus, *Amytis*, 168, 169, 172, 174, 176, 178, 179, 181, 182.
 ———, *Amytornis*, 173.
 ———, *Diaphorillas textilis*, 169, 170, 173, 181.
macrura, *Fringilla*, 150.
maculata, *Sericornis maculata*, 20, 27.
 ——— *ashbyi*, *Sericornis*, 21, 27.
 ——— *balstoni*, *Sericornis*, 21, 27.
 ——— *maculata*, *Sericornis*, 20, 27.
 ——— *mellori*, *Sericornis*, 21, 26, 27.
 ——— *osculans*, *Sericornis*, 21, 27.
 ——— *warreni*, *Sericornis*, 21, 22, 27.
maculatus, *Sericornis*, 2, 20, 23, 26.
 ——— *geraldtonensis*, *Sericornis*, 21, 27.
 ——— *gouldianus*, *Sericornis*, 28.
 ——— *hartogi*, *Sericornis*, 21, 27.
 ——— *houtmanensis*, *Sericornis*, 21, 27.
 ——— *inopinatus*, *Sericornis*, 28.
 ——— *osculans*, *Sericornis*, 26.
 ——— *rymilli*, *Sericornis*, 21, 27.
magna, *Acanthiza*, 42, 43, 46.
 ———, *Sericornis*, 43.
Magnamytis, gen. nov., 166, 167.
 ——— *alligator*, nom. nov., 212.
 ——— *dorotheæ*, 209, 212.
 ——— *housei*, 167, 213.
 ——— *kimberleyi*, 213, 214.
 ——— *woodwardi*, 211.
 ———, ——— *dorotheæ*, 209, 210.
magnirostra, *Acanthiza*, 3.
magnirostris, *Megathiza*, 6.
 ———, *Sericornis*, 2, 3, 4.
 ———, *Strepera graculina*, 407, 408.
 ——— *bunya*, *Megathiza*, 6.
 ———, ———, *Sericornis*, 3, 5.
 ——— *howei*, *Megathiza*, 6.
 ———, ———, *Sericornis*, 3, 5.
 ——— *keri*, *Megathiza*, 6.
 ———, ———, *Sericornis*, 1, 3, 4, 6.
 ——— *magnirostris*, *Megathiza*, 6.
 ———, ———, *Sericornis*, 3, 5.
 ——— *viridior*, *Megathiza*, 6.
 ———, ———, *Sericornis*, 3, 4, 5, 6.
magnus, *Acanthornis*, 43.
 Magpie, Black, 420.
 ———, Black-backed, 337, 343, 344, 345, 358.
 ———, Hircine, 409.
 ———, White-backed, 346, 347, 349, 357, 358.
 Magpie-Lark, 323, 328, 330, 331.
malachura, *Muscicapa*, 130, 131.
malachurus, *Malurus*, 131.

THE BIRDS OF AUSTRALIA.

- malachurus*, *Stipiturus*, 130, 131, 146.
 — *halmaturina*, *Stipiturus*, 132, 144, 145.
 — *hartogi*, *Stipiturus*, 132, 134, 144, 145.
 — *intermedius*, *Stipiturus*, 132, 145.
 — *littleri*, *Stipiturus*, 132, 143, 145.
 — *malachurus*, *Stipiturus*, 132, 143, 145.
 — *mallee*, *Stipiturus*, 132, 133, 143, 145.
 — *media*, *Stipiturus*, 132, 141, 144, 145.
 — *richmondi*, *Stipiturus*, 145.
 — *rothschildi*, *Stipiturus*, 132, 143.
 — *ruficeps*, *Stipiturus*, 140, 143, 146.
 — *tregellasi*, *Stipiturus*, 132, 133, 143, 145.
 — *westernensis*, *Stipiturus*, 132, 140, 141, 145.
Malacurus, 47.
Mallee Emu-Wren, 142.
mallee, *Stipiturus*, 132.
 —, — *malachurus*, 132, 133, 143, 145.
Malurus alboscapulatus, 85.
 — *amabilis*, 106.
 — — *amabilis*, 106, 110.
 — — *barroni*, 106, 110.
 — — *dulcis*, 106, 110.
 — — *rogersi*, 106, 107, 110.
 — *assimilis*, 64, 95, 97, 100, 101, 109.
 — *australis*, 49, 59.
 — *bernieri*, 95, 101.
 — *boweri*, 117.
 — *brownii*, 116, 118, 121.
 — *cærulei-capillus*, 100, 101, 111.
 — *callainus*, 61, 64, 65, 66, 67, 68, 69.
 — *coronatus*, 124, 125, 127, 128.
 — — *macgillivrayi*, 125, 126, 129.
 — *cruentatus*, 116, 118, 121.
 — — *boweri*, 117, 122.
 — (cruentatus) *pyrrhonotus*, 117.
 — *cyaneus*, 47, 48, 52, 59, 60, 69.
 — — *ashbyi*, 49, 55, 59.
 — — *australis*, 49, 59.
 — — *cyaneus*, 49, 59.
 — — *cyanochlamys*, 49, 59, 60.
 — — *elizabethæ*, 49, 55, 59.
 — — *fletcheræ*, 49, 60.
 — — *henriettæ*, 49, 55, 59.
 — — *leggei*, 49, 54, 55, 59.
 — — *samueli*, 50, 55, 60.
 — *cyanochlamys*, 49, 59.
 — *cyanotus*, 74, 75, 77, 79.
 — — *cyanotus*, 75, 82.
 — — *diamantina*, 76, 82.
 — — *exsul*, 76, 82.
 — *dorsalis*, 116, 121.
 — *dulcis*, 106, 109.
 — *edouardi*, 85, 86, 88, 90, 91.
 — *elegans*, 103.
 — *elizabethæ*, 49, 53, 58, 59, 60.
 — *emitis*, 132.
 — *gouldi*, 49, 59, 60.
 — *gularis*, 131.
 — *hypoleucus*, 106, 108.
Malurus lamberti, 94, 95, 97, 98, 102.
 — — *assimilis*, 95, 101.
 — — *bernieri*, 96, 101.
 — — *dawsonianus*, 96, 102.
 — — *lamberti*, 95, 101.
 — — *mastersi*, 96, 101.
 — — *morgani*, 96, 101.
 — — *mungi*, 96, 101.
 — — *occidentalis*, 96, 101.
 — *leuconotus*, 74, 75, 77, 79, 81, 82.
 — — *leuconotus*, 76, 82.
 — — *perplexus*, 76, 82.
 — *leucopterus*, 75, 77, 86, 87, 88, 89.
 — — *edouardi*, 86.
 — — *leucopterus*, 86.
 — *longicaudus*, 48, 52, 59.
 — *malachurus*, 131.
 — *melanocephalus*, 116, 121.
 — — *cruentatus*, 117, 122.
 — — *melvillensis*, 117, 122.
 — — *melanocephalus*, 117, 122.
 — — *pyrrhonotus*, 117, 122.
 — *melanonotus*, 61.
 — *melanotus*, 47, 61, 63, 66, 69.
 — — *caillanus*, 62, 67, 69.
 — — *germaini*, 62, 69.
 — — *melanotus*, 62, 66, 68.
 — — *musgravi*, subsp. nov., 62, 69.
 — — *victoriæ*, 62, 66, 68.
 — — *whitei*, 62, 67.
 — *palustris*, 131.
 — *pectoralis*, 70, 73, 151.
 — *pulcherrimus*, 101, 106, 109, 111, 112, 113, 114.
 — — *stirlingi*, 111, 114.
 — *splendens*, 47, 70, 71.
 — — *perthi*, subsp. nov., 73.
 — — *riordani*, 70, 71, 72, 73.
 — — *splendens*, 70, 73.
 — *superbus*, 49.
 — *textilis*, 165, 172, 181.
 — *whitei*, 61, 64, 66, 68, 69.
Masked Wood-Swallow, 226.
mastersi, *Dasyornis longirostris*, 156.
 —, *Leggeornis lamberti*, 96.
 —, *Malurus lamberti*, 96, 101.
 —, *Sphenura longirostris*, 154.
media, *Stipiturus malachurus*, 132, 141, 144, 145.
megalura, *Amytis*, 172, 181.
 —, *Diaphorillas textilis*, 170.
megalurus, *Amytornis*, 173.
megarhyncha, *Caleya*, 310.
 —, *Muscicapa*, 309, 310.
 — *cerviniventris*, *Caleya*, 311, 314.
 — —, *Colluricincla*, 311.
 — *gouldi*, *Caleya*, 311, 314.
 — —, *Colluricincla*, 311, 314.
 — *griseata*, *Caleya*, 311, 314.
 — —, *Colluricincla*, 311, 314.
 — *normani*, *Caleya*, 311, 314.

INDEX.

- megarhyncha rufogaster*, *Caleya*, 311, 314.
 ———, *Colluricincla*, 311, 314.
 ———, *Pinarolestes*, 311.
Megathiza, sub-genus nov., 1.
 ——— *keri*, 1.
 ——— *magnirostris*, 6.
 ——— *bunya*, 6.
 ——— *howei*, 6.
 ——— *keri*, 6.
 ——— *magnirostris*, 6.
 ——— *viridior*, 6.
melanocephala, *Muscicapa*, 115, 116, 118.
 ———, *Ryania*, 116.
 ———, ——— *melanocephala*, 117, 122.
 ——— *boweri*, *Ryania*, 117, 123.
 ——— *cruentata*, *Ryania*, 117, 123.
 ——— *melanocephala*, *Ryania*, 117, 122.
 ——— *pyrrhonota*, *Ryania*, 117, 123.
melanocephalus, *Malurus*, 116, 121.
 ——— *cruentatus*, *Malurus*, 117, 122.
 ——— *melanocephalus*, *Malurus*, 117, 122.
 ——— *melvillensis*, *Malurus*, 117, 122.
 ——— *pyrrhonotus*, *Malurus*, 117, 122.
melanoleucus, *Gallina*, 320, 323, 331.
melanoleucus, *Tanypus*, 323.
melanonotus, *Tanypus*, 323.
melanops, *Artamus*, 243, 247, 249, 251, 253.
 ———, ——— *melanops*, 245.
 ———, *Austrartamus*, 244.
 ———, ——— *melanops*, 245.
 ——— *florenciae*, *Artamus*, 245, 254.
 ———, *Austrartamus*, 245.
 ——— *hypoleucus*, *Artamus*, 245, 254.
 ———, *Austrartamus*, 245.
 ——— *melanops*, *Artamus*, 245, 254.
 ———, *Austrartamus*, 245.
 ——— *normani*, *Austrartamus*, 255.
 ——— *tregellasi*, *Artamus*, 245, 246, 254.
 ———, *Austrartamus*, 245.
 ——— *venustus*, *Artamus*, 245, 254.
 ———, *Austrartamus*, 245.
melanoptera, *Strepera*, 405, 413, 414, 416, 427, 428.
 ——— *halmaturina*, *Strepera*, 413, 417.
 ——— *howei*, *Strepera*, 413, 417.
 ——— *melanoptera*, *Strepera*, 413, 417.
melanotus, *Malurus*, 47, 61, 63, 66.
 ——— *caillanus*, *Malurus*, 62, 67, 69.
 ——— *germaini*, *Malurus*, 62, 69.
 ——— *melanotus*, *Malurus*, 62, 66, 68.
 ——— *musgravi*, *Malurus*, 62, 69.
 ——— *victoriae*, *Malurus*, 62, 66, 68.
 ——— *whitei*, *Malurus*, 62, 67.
mellori, *Cracticus nigrogularis*, 375, 381.
 ———, *Sericornis maculata*, 21, 26, 27.
Melloria, 334, 335, 365.
 ——— *quoyi*, 366.
 ——— *jardini*, 367, 372.
 ——— *rufescens*, 367, 372.
 ——— *spaldingi*, 367, 372.
melvillensis, *Artamus leucorhynchus*, 218, 224.
 ———, *Colluricincla brunnea*, 290, 294.
 ———, ——— *parvula*, 306, 308.
 ———, *Malurus melanocephalus*, 117, 122.
mentalis, *Bulestes*, 383, 398.
 ———, ——— *mentalis*, 398.
 ———, *Cracticus*, 370, 398, 399, 400.
 ———, ——— *mentalis*, 398.
 ———, *Sphenura*, 150.
 ——— *kempi*, *Cracticus*, 398, 400.
Merion Binnion, 135.
Merops picatus, 323.
merrotsyti, *Amytornis*, 169, 197, 199.
 ———, *Diaphorillas*, 170, 171, 198.
 ———, ——— *textilis*, 198.
Micartamus, 268.
 ——— *minor*, 269.
 ———, ——— *derbyi*, 269, 273.
 ———, ——— *minor*, 269, 272.
minima, *Sericornis parvula*, 13, 17.
minimus, *Sericornis*, 2, 14, 17, 19.
 ———, ——— *frontalis*, 13, 17.
 ———, ——— *longirostris*, 13, 17.
 ——— *yorki*, *Sericornis*, 19.
minor, *Artamus*, 268, 269, 270.
 ———, *Leptopteryx*, 269.
 ———, *Micartamus*, 269.
 ———, *Ocypterus*, 269.
 ——— *derbyi*, *Artamus*, 269, 271, 273.
 ———, ——— *Micartamus*, 269, 273.
 ——— *minor*, *Artamus*, 269.
 ———, ——— *Micartamus*, 269, 273.
modesta, *Amytis*, 168, 169, 179, 183, 184.
modestus, *Amytornis*, 186, 189.
 ———, *Diaphorillas*, 171, 183, 185.
 ———, ——— *modestus*, 185.
 ———, ——— *textilis*, 169, 183, 185.
 ——— *indulkanna*, *Diaphorillas*, 170, 185.
 ——— *modestus*, *Diaphorillas*, 170, 185.
 ——— *obscurior*, *Diaphorillas*, 170, 184, 185.
Mol-göl-ga, 368.
morgani, *Diaphorillas textilis*, 169, 170, 173, 182.
 ———, *Leggeornis lamberti*, 96, 97.
 ———, *Malurus lamberti*, 96, 101.
 "Mormon," 72.
Motacilla fimbriata, 131.
 ——— *superba*, 48.
mungi, *Leggeornis lamberti*, 96.
 ———, *Malurus lamberti*, 96, 101.
munna, *Artamus personatus*, 227, 234.
 ———, *Campbellornis personatus*, 227, 234.
murchisoni, *Colluricincla rufiventris*, 292, 295, 300.
Mur-re-gan, 332.
Muscicapa malachura, 130, 131.
 ——— *megarhyncha*, 309, 310.
 ——— *melanocephala*, 115, 116, 118.
musgravi, *Malurus melanotus*, 62, 69.
musschenbrocki, *Artamus leucorhynchus*, 223.
myall, *Diaphorillas*, 186.

THE BIRDS OF AUSTRALIA.

- myall*, *Diaphorillas inexpectatus*, 189.
 ———, ——— *textilis*, 169, 186, 189.
Myiolestes aruensis, 313.
 ——— *gouldii*, 310, 313.
 ——— *griseatus*, 310, 313.
 ——— *vitiensis*, 309.
Myiophila, 309.
Mytisa, 165, 167.
 ——— *striata*, 193.
 ——— ——— *howei*, 193.
 ——— ——— *oweni*, 200.
 ——— ——— *rufa*, 200.
 ——— *striata*, 193.
 ——— ——— *whitei*, 200.

neglecta, *Grallina cyanoleuca*, 324.
Neostrepera, 334, 335, 401, 404.
 ——— *versicolor*, 424, 429.
 ——— ——— *arguta*, 424, 434.
 ——— ——— *centralia*, 424, 425, 434.
 ——— ——— *intermedia*, 424, 429, 434.
 ——— ——— *plumbea*, 424, 429, 434.
 ——— ——— *riordani*, 407.
 ——— ——— *versicolor*, 424, 434.
 ——— ——— *vieilloti*, 424, 434.
Nesomalurus, 85, 90.
 ——— *leucopterus*, 86.
 ——— ——— *edouardi*, 86, 93.
 ——— ——— *leucopterus*, 86, 93.
nigrigularis picatus, *Cracticus*, 375.
nigrogularis, *Cracticus*, 374, 377, 378, 379, 391.
 ———, ——— *nigrogularis*, 375, 381.
 ———, *Vanga*, 374.
 ——— *coongani*, *Cracticus*, 375, 382.
 ——— *inkermani*, *Cracticus*, 375, 381.
 ——— *kalgoorli*, *Cracticus*, 375, 376, 381.
 ——— *mellori*, *Cracticus*, 375, 381.
 ——— *nigrogularis*, *Cracticus*, 375, 381.
 ——— *picatus*, *Cracticus*, 375, 381.
 ——— *territori*, *Cracticus*, 375, 382.
 ——— *tormenti*, *Cracticus*, 375, 381.
normani, *Austrartamus melanops*, 255.
 ———, *Caleya megarhyncha*, 311, 314.
 Northern Scrub-Wren, 16, 29.

oblita, *Colluricincla harmonica*, 279, 288.
obscurior, *Diaphorillas modestus*, 170, 184, 185.
occidentalis, *Leggeornis lamberti*, 96, 99.
 ———, *Malurus lamberti*, 96, 101.
Ocyptera, 215.
Ocypterus, 215.
 ——— *albiventer*, 244.
 ——— *albovittatus*, 257.
 ——— *fuscatus*, 269.
 ——— *fuscus*, 269.
 ——— *minor*, 269.
 ——— *personatus*, 225, 226.
 ——— *superciliosus*, 235.
olindus, *Bulestes torquatus*, 386, 396.
 ———, *Cracticus torquatus*, 385, 386, 396.

omissa, *Colluricincla parvula*, 306, 308.
 ———, *Conigravea parvula*, 306, 308.
 Orange-rumped Flycatcher, 116, 118.
Oreoscopus, 39.
 ——— *gutturalis*, 40.
 ——— ——— *boweri*, 40.
 Organ Bird, 354.
organicum, *Gymnorhina*, 350, 353.
osculans, *Sericornis*, 10, 12, 20, 23.
 ———, ——— *maculata*, 21, 27.
 ———, ——— *maculatus*, 26.
oweni, *Amytis*, 197.
 ———, *Amytornis striatus*, 200, 201.
 ———, *Diaphorillas striatus*, 169, 200.
 ———, ——— *whitei*, 170, 204.
 ———, *Mytisa striata*, 200.
Oxypterus, 215.
Oxyptera, 215.

pallescens, *Colluricincla harmonica*, 279, 288.
pallida, *Campbellornis superciliosus*, 236, 242.
pallidirostris, *Collyriocinclla*, 290, 293.
pallidus, *Turdus*, 279, 288.
palustris, *Malurus*, 131.
parryi, *Colluricincla brunnea*, 290, 291, 293, 294.
parvirostris, *Artamus leucorhynchus*, 217, 222, 223.
parvissima, *Colluricincla*, 319, 313, 314.
parvula, *Conigravea*, 306.
 ———, *Colluricincla*, 305, 306, 309, 310, 312, 315.
 ——— *alligator*, *Colluricincla*, 306, 308.
 ——— *conigravi*, *Colluricincla*, 304, 306, 308.
 ——— ———, *Conigravea*, 306, 308.
 ——— *harterti*, *Sericornis*, 7, 12.
 ——— *herbertoni*, *Sericornis*, 13, 15.
 ——— *laevigaster*, *Sericornis*, 13, 15.
 ——— *melvillensis*, *Colluricincla*, 306, 308.
 ——— *minima*, *Sericornis*, 13, 17.
 ——— *omissa*, *Colluricincla*, 306, 308.
 ——— ———, *Conigravea*, 306, 308.
 ——— *parvula*, *Conigravea*, 306, 308.
 ——— ———, *Sericornis*, 7, 12.
 ——— *rosinae*, *Sericornis*, 7, 13.
parvulus, *Pinarolestes*, 306.
 ———, *Sericornis*, 1, 7, 9, 12.
pectoralis, *Malurus*, 70, 73, 151.
 Peewit, 327.
perplexus, *Hallornis leuconotus*, 76, 83.
 ———, *Malurus leuconotus*, 76, 82.
personatus, *Artamus*, 226, 229, 230, 233, 238, 239, 241.
 ———, ——— × *A. superciliosus*, 241.
 ———, *Campbellornis*, 225, 226, 227, 234.
 ———, *Ocypterus*, 225, 226.
 ——— *gracilis*, *Artamus*, 226, 234.
 ——— *munna*, *Artamus*, 227, 234.
 ——— ———, *Campbellornis*, 227, 234.
 ——— *personatus*, *Artamus*, 226, 234.
 ——— ———, *Campbellornis*, 227, 234.
perspicillatus, *Artamus*, 253, 254.

INDEX.

- perthi*, *Angroyan cyanopterus*, 258, 267.
 —, *Malurus splendens*, 73.
phæus, *Artamus*, 236.
 —, — *superciliosus*, 236, 242.
phæus, *Artamus*, 236, 242.
 —, — *superciliosus*, 236.
 —, *Gracula*, 323, 332.
picata, *Grallina*, 323, 332.
picatus, *Cracticus*, 374, 378.
 —, — *nigrigularis*, 375.
 —, — *nigrogularis*, 375, 381.
 —, *Merops*, 323.
 Pied Bell-Magpie, 411, 412.
 — Crow-Shrike, 406, 411.
 — Grakle, 323, 331, 332.
 — Strepera, 428.
Pinarolestes boweri, 317.
 — *megarhyncha rufogaster*, 311.
 — *parvulus*, 306.
 — *rufigaster*, 310.
 — *rufiventris*, 310.
 Piping Crow-Shrike, 344.
 Piping-Roller, 337, 342.
plumbea, *Neostrepera versicolor*, 424, 429, 434.
 —, *Strepera*, 424, 426, 430.
 —, — *cuneicaudata*, 424.
 —, — *versicolor*, 424, 433.
Pnigocichla, 276.
poliocephala, *Sphenura*, 150.
Pomare, 322.
Pomareopsis, 322.
 — *semiatra*, 322.
 Port Jackson Thrush, 278, 282.
Prionopidae, 274, 275.
Pseudartamus, 256.
 — *cyanopterus*, 257, 258.
pulcherrimus, *Leggeornis*, 94, 111.
 —, *Malurus*, 101, 106, 109, 111, 112, 113, 114.
 — *pulcherrimus*, *Leggeornis*, 111, 114.
 — *stirlingi*, *Malurus*, 111, 114.
purnelli, *Diaphorillas*, 168, 170, 171, 179, 190.
 —, — *textilis*, 169, 185, 190, 191, 192.
 Purple-crowned Wren, 125, 128.
pyrrhonota, *Ryania melanocephala*, 117, 123.
pyrrhonotus, *Malurus (cruentatus)*, 117.
 —, — *melanocephalus*, 117, 122.

quoyi, *Barita*, 366.
 —, *Cracticus*, 366, 368.
 —, *Melloria*, 366.
 — *jardini*, *Cracticus*, 367, 371.
 —, —, *Melloria*, 367, 372.
 — *quoyi*, *Cracticus*, 371.
 — *rufescens*, *Cracticus*, 366, 371.
 —, —, *Melloria*, 367, 372.
 — *spaldingi*, *Cracticus*, 367, 371.
 —, —, *Melloria*, 367, 372.
 — *tunneyi*, *Cracticus*, 366, 370, 371.

 Rain-Bird, 388.
Ramphastus cassicus, 373.
rectirostris, *Colluricincla*, 282, 279, 287, 288.
 Red-backed Wren, 116, 122.
 — bellied Shrike-Thrush, 302.
 — winged Wren, 99, 103, 104.
richmondi, *Stipiturus malachurus*, 145.
riordani, *Malurus splendens*, 70, 71, 72, 73.
 —, *Neostrepera versicolor*, 407.
 —, *Strepera graculina*, 412.
robinsoni, *Strepera graculina*, 407.
robustus, *Cracticus*, 375.
roebucki, *Colluricincla brunnea*, 290, 294.
rogersi, *Leggeornis amabilis*, 106, 109, 110.
 —, *Malurus amabilis*, 106, 107, 110.
rogersiana, *Rosina coronata*, 129.
 Roller, Piping, 337, 342.
Rosina, 124.
 — *coronata*, 125.
 — — *coronata*, 125, 129.
 — — *macgillivrayi*, 125, 129.
 — — *rogersiana*, subsp. nov., 129.
rosinæ, *Sericornis frontalis*, 8, 10, 13.
 —, — *parvula*, 7, 13.
rothschildi, *Stipiturus malachurus*, 132, 143.
rufa, *Amytis*, 197, 203.
 —, *Amytornis*, 169, 197, 200, 203.
 —, *Diaphorillas striata*, 200, 204.
 —, — *whitei*, 204.
 —, *Mytisa striata*, 200.
rufescens, *Cracticus*, 366, 370, 377.
 —, — *quoyi*, 366, 371.
 —, *Melloria quoyi*, 367, 372.
ruficeps, *Sphenura*, 150.
 —, *Stipiturus*, 130, 146.
 —, — *malachurus*, 140, 146.
rufigaster, *Colluricincla*, 293, 305, 309, 310.
 —, *Pinarolestes*, 310.
rufiventris, *Colluricincla*, 277, 284, 292, 295, 297.
 —, *Pinarolestes*, 310.
 — *carteri*, *Colluricincla*, 295, 296, 300.
 — *murchisoni*, *Colluricincla*, 292, 295, 300..
 — *rufiventris*, *Colluricincla*, 295, 300.
 — *whitei*, *Colluricincla*, 295, 296, 300.
rufogaster, *Caleyia megarhyncha*, 311, 314..
 —, *Colluricincla*, 309, 310, 312.
 —, — *megarhyncha*, 311, 314.
 Rufous-breasted Shrike-Thrush, 310..
 — Bristle Bird, 158, 159, 160, 161..
 — Butcher-Bird, 369.
 — Grass-Wren, 200.
 — crowned Emu-Wren, 146.
 — — Wren, 147.
rufus, *Diaphorillas whitei*, 171.
Ryania, 115.
 — *melanocephala*, 116.
 — — *boweri*, 117, 123,
 — — *cruentata*, 117, 123.
 — — *melanocephala*, 117, 122.

THE BIRDS OF AUSTRALIA.

Ryania melanocephala pyrrhonota, 117, 123.
rymilli, *Sericornis maculatus*, 21, 27.

samueli, *Malurus cyaneus*, 50, 55, 60.
saturninus, *Lanius*, 278.
Saxicola longirostris, 7, 9.
splendens, 70.

Scarlet-backed Warbler, 118.

Scrub-Wren, 7.

— - —, Buff-Breasted, 15.
 — - —, Collared, 40.
 — - —, Dirk Hartog Island, 25, 27.
 — - —, Large-billed, 3.
 — - —, Little, 17.
 — - —, Northern, 16, 29.
 — - —, Spotted, 20, 24.
 — - —, Western, 25.
 — - —, White-browed, 11.

selbii, *Colluricincla*, 279, 286, 289, 292.

semitra, *Pomareopsis*, 322.

Sericornis, 1.

— *balstoni*, 20, 25, 26.
 — *brevirostris*, 3.
 — *brunneopygius*, 17.
 — *citreigularis*, 19.
 — *flindersi*, 31, 37.
 — *frontalis*, 2, 7, 11, 14, 31, 37.
 — — *frontalis*, 7, 13.
 — — *harterti*, 8, 13.
 — — *laevigaster*, 13, 15.
 — — *longirostris*, 7, 9, 13.
 — — *minimus*, 13, 17.
 — — *rosinæ*, 8, 10, 13.
 — — *wyldei*, 13.
 — *gularis*, 31, 37.
 — *gutturalis*, 39, 40.
 — *halmaturina*, 21.
 — *humilis*, 1, 12, 30, 31, 37.
 — *insularis*, 31, 32.
 — *laevigaster*, 2, 12, 14, 15.
 — — *herbertoni*, 16.
 — — *laevigaster*, 16.
 — — *tweedi*, subsp. nov., 16.
 — *lathamii*, 5.
 — *longirostris harterti*, 7.
 — — *insularis*, 31.
 — — *laevigaster*, 13, 15.
 — — *longirostris*, 7.
 — — *minimus*, 13, 17.
 — — *parvulus*, 7.
 — — *rosinæ*, 7.
 — — *wyldei*, 8.
 — *maculata ashbyi*, 21, 27.
 — — *balstoni*, 21, 27.
 — — *maculata*, 20, 27.
 — — *mellori*, 21, 26, 27.
 — — *osculans*, 21, 27.
 — — *warreni*, 21, 22, 27.
 — *maculatus*, 2, 20, 23, 26.
 — — *geraldtonensis*, 21, 27.

Sericornis maculatus gouldianus, subsp. nov., 28.

— — *hartogi*, 21, 27.
 — — *houtmanensis*, 21, 27.
 — — *inopinatus*, subsp. nov., 28.
 — — *osculans*, 26.
 — — *rymilli*, 21, 27.
 — *magna*, 43.
 — *magnirostris*, 2, 3, 4.
 — — *bunya*, 3, 5.
 — — *howei*, 3, 5.
 — — *keri*, 1, 3, 4, 6.
 — — *magnirostris*, 3, 5.
 — — *viridior*, 3, 4, 5, 6.
 — *minimus*, 2, 14, 17, 19.
 — — *yorki*, subsp. nov., 19.
 — *osculans*, 10, 12, 20, 23.
 — *parvula harterti*, 7, 12.
 — — *herbertoni*, 13, 15.
 — — *laevigaster*, 13, 15.
 — — *minima*, 13, 17.
 — — *parvula*, 7, 12.
 — — *rosinæ*, 7, 13.
 — *parvulus*, 7, 9, 12.
 — *tyrannula*, 29.
 — *tyrannulus*, 29.

Short-winged Thrush, 151.

Shrike, Clouded, 384, 393.

—, Hook-billed, 394.

— - Thrush, Brown, 290, 292.

— - —, Buff-bellied, 295, 297, 298.

— - —, Grey, 278, 285.

— - —, Little, 306.

— - —, Red-bellied, 302.

— - —, Rufous-breasted, 310.

— - —, Stripe-breasted, 317.

sibila, *Colluricincla*, 317, 318.

Smicronis brevirostris, 3.

Sordid Thrush, 257.

sordidus, *Artamus*, 257, 265, 266.

—, *Turdus*, 257, 265.

spaldingi, *Cracticus*, 365, 366, 370.

—, — *quoyi*, 367, 371.

—, *Melloria quoyi*, 367, 372.

Sphenura, 149, 150.

— *acaciæ*, 150.

— *albicollis*, 150.

— *brachyptera*, 151, 152.

— — *brachyptera*, 151, 153.

— — *longirostris*, 154.

— — *victoriæ*, 151, 153.

— *broadbenti*, 157, 158, 159, 162.

— — *broadbenti*, 158, 164.

— — *litoralis*, 158, 164.

— — *whitei*, 158, 164.

— *cinnamomea*, 150.

— *coraya*, 149, 150.

— *erythroptera*, 150.

— *fringillaris*, 150.

— *frontalis*, 150.

— *litoralis*, 158, 164.

INDEX.

- Sphenura longirostris*, 154.
 ——— *mastersi*, subsp. nov., 154, 155.
 ——— *mentalis*, 150.
 ——— *poliocephala*, 150.
 ——— *ruficeps*, 150.
 ——— *striolata*, 150.
 ——— *sulphurascens*, 150.
 ——— *superciliaris*, 150.
 ——— *tibicen*, 150.
Sphænura, 149.
splendens, *Malurus*, 47, 70, 71.
 ———, *Saxicola*, 70.
 ——— *perthi*, *Malurus*, 73.
 ——— *riordani*, *Malurus*, 70, 71, 72.
 ——— *splendens*, *Malurus*, 70, 73.
 Spotted Scrub-Wren, 20, 24.
 Squeaker, 430, 431.
Stipiturus, 130.
 ——— *malachurus*, 139, 131, 146.
 ——— *halmaturina*, 132, 144, 145.
 ——— *hartogi*, 132, 134, 144, 145.
 ——— *intermedius*, 132, 145.
 ——— *littleri*, 132, 143, 145.
 ——— *malachurus*, 132, 143, 145.
 ——— *mallee*, 132, 133, 143, 145.
 ——— *media*, 132, 141, 144, 145.
 ——— *richmondi*, subsp. nov., 145.
 ——— *rothschildi*, 132, 143.
 ——— *ruficeps*, 140, 143, 146.
 ——— *tregellasi*, 132, 133, 143, 145.
 ——— *westernensis*, 132, 140, 141, 145.
 ——— *mallee*, 132.
 ——— *ruficeps*, 130, 146.
 ——— *westernensis*, 132.
stirlingi, *Malurus pulcherrimus*, 111, 114.
strepens, *Barita*, 407.
Strepera, Grey, 428.
 ———, *Pied*, 428.
Strepera, 401, 334, 335.
 ——— *anaphonensis*, 411, 423, 427.
 ——— *arguta*, 401, 421, 423, 425, 429, 430.
 ——— *cinerea*, 423, 426.
 ——— *cuneicaudata*, 420, 424, 426, 432.
 ——— *plumbea*, 424.
 ——— *fuliginosa*, 405, 418, 420, 421, 427, 429.
 ——— *colei*, 418, 422.
 ——— *fuliginosa*, 418.
 ——— *fusca*, 415, 416, 424, 428.
 ——— *graculina*, 405, 406, 421, 428.
 ——— *ashbyi*, 407, 412.
 ——— *graculina*, 407, 412.
 ——— *magnirostris*, 407, 408, 412.
 ——— *riordani*, 412.
 ——— *robinsoni*, 407, 412.
 ——— *halmaturina*, 413.
 ——— *intermedia*, 416, 424, 433.
 ——— *plumbea*, 424, 426, 430.
 ——— *melanoptera*, 405, 413, 414, 416, 427, 428.
 ——— *halmaturina*, 413, 414, 417.
 ——— *howei*, 413, 417.
Strepera melanoptera melanoptera, 413, 417.
 ——— *strepera*, 406.
 ——— *versicolor*, 405, 423, 428.
 ——— *arguta*, 424, 433.
 ——— *intermedia*, 424, 433.
 ——— *plumbea*, 424, 433.
 ——— *versicolor*, 424, 433.
 ——— *vieillotii*, 424, 433.
strepera, *Barita*, 406.
 ———, *Coracias*, 406, 408.
 ———, *Coronica*, 406.
 ———, *Corvus*, 406.
 ———, *Cracticus*, 401.
 ———, *Gracula*, 406.
streperus, *Cracticus*, 406.
striata, *Amytornis*, 197, 300.
 ———, *Mytisa*, 193.
 ——— *howei*, *Mytisa*, 193.
 ——— *oweni*, *Mytisa*, 200.
 ——— *rufa*, *Diaphorillas*, 200, 204.
 ———, *Mytisa*, 200.
 ——— *striata*, *Mytisa*, 193.
 ——— *whitei*, *Mytisa*, 200.
 Striated Grass-Wren, 193, 202, 203.
striatus, *Amytis*, 168, 169, 178, 187, 193, 196, 200.
 ———, *Amytornis*, 193.
 ———, *Dasyornis*, 193.
 ———, *Diaphorillas*, 171, 193.
 ——— *howei*, *Diaphorillas*, 165, 169, 193, 194, 197, 198.
 ——— *oweni*, *Amytornis*, 200, 201.
 ———, *Diaphorillas*, 169, 200.
 ——— *striatus*, *Diaphorillas*, 169, 170, 198.
 ——— *whitei*, *Diaphorillas*, 169, 200.
strigata, *Colluricincla*, 278, 287, 289.
 ———, *harmonica*, 279, 285, 288.
striolata, *Sphenura*, 150.
 Stripe-breasted Shrike-Thrush, 317.
subcinereus, *Turdus*, 295.
sulphurascens, *Sphenura*, 150.
superba, *Motacilla*, 48.
superbus, *Malurus*, 49.
superciliaris, *Sphenura*, 150.
superciliosa, *Colluricincla*, 279, 287, 293.
 ———, *harmonica*, 280, 289.
superciliosus, *Artamus*, 230, 231, 232, 235, 238, 240, 241, 265.
 ———, ——— × *A. personatus*, 241.
 ———, *Campbellornis*, 225, 235, 236.
 ———, *Ocypterus*, 235.
 ——— *pallida*, *Campbellornis*, 286, 242.
 ——— *phæus*, *Artamus*, 236, 242.
 ———, *Campbellornis*, 236.
 ——— *superciliosus*, *Artamus*, 236, 242.
 ———, *Campbellornis*, 236.
Sylvia dorsalis, 116, 118, 121.
Tanypus, 320.
 ——— *australis*, 320, 323, 331.
 ——— *melanoleucus*, 323.

THE BIRDS OF AUSTRALIA.

- Tarra-war-nang*, 342.
 Tasmanian Blue Wren, 58.
 — Butcher-Bird, 390.
Tasmanornis, 30, 37.
 — *humilis*, 31.
 — — *archibaldi*, subsp. nov., 38.
 — — *flindersi*, 31, 32, 37.
 — — *gularis*, 31, 32, 37.
 — — *humilis*, 31, 37.
 — — *insularis*, 31, 37.
 — — *tregellasi*, 31, 37.
tenebrosus, *Artamus*, 258.
 —, *Turdus*, 258.
terræreginæ, *Cracticus tibicen*, 338, 348.
 —, *Gymnorhina*, 338.
 —, — *tibicen*, 338, 363.
terra-regine, *Gymnorhina*, 345.
territori, *Cracticus nigrogularis*, 375, 382.
 Textile Wren, 187.
textilis, *Amytis*, 168, 169, 172, 175, 179, 187, 190.
 —, *Amytornis*, 166, 172, 190, 191.
 —, *Diaphorillas*, 166, 171, 172, 176, 190, 191.
 —, *Malurus*, 165, 172, 181.
 — *carteri*, *Amytornis*, 173.
 — —, *Diaphorillas*, 170, 173, 181.
 — *giganturus*, *Diaphorillas*, 169, 170, 173.
 — *indulkanna*, *Diaphorillas*, 169, 183, 184, 185.
 — *inexpectatus*, *Diaphorillas*, 169, 186, 188.
 — *macrourus*, *Diaphorillas*, 169, 170, 173, 181.
 — *megalura*, *Diaphorillas*, 170.
 — *merrotyi*, *Diaphorillas*, 198.
 — *modestus*, *Diaphorillas*, 169, 183, 185.
 — *morgani*, *Diaphorillas*, 169, 170, 173, 182.
 — *myall*, *Diaphorillas*, 169, 186, 189.
 — *purnelli*, *Diaphorillas*, 169, 185, 190, 191, 192.
 — *textilis*, *Diaphorillas*, 169, 170, 173, 181.
 — *varia*, *Diaphorillas*, 169, 170, 182.
 Thick-billed Grass-Wren, 183.
 Thrush, Harmonic, 278.
 —, Harmonious, 281.
 —, Port Jackson, 278, 282.
 —, Short-winged, 151.
 —, Sordid, 257.
tibicen, *Barita*, 337.
 —, *Coracias*, 336, 337, 341, 342, 355.
 —, *Cracticus*, 337.
 —, — *tibicen*, 338, 348.
 —, *Gymnorhina*, 336, 337, 342, 343, 345, 347, 362, 363.
 —, — *tibicen*, 338, 363.
 —, — × *G. leuconota*, 345, 355, 362.
 —, *Sphenura*, 150.
 — *eylandtensis*, *Gymnorhina*, 338, 349.
 — *finki*, *Gymnorhina*, 338, 349.
 — *intermissa*, *Cracticus*, 338, 348.
 — —, *Gymnorhina*, 338.
 — *longirostris*, *Cracticus*, 338, 346, 349.
 — —, *Gymnorhina*, 338, 348.
tibicen terræreginæ, *Cracticus*, 338, 348.
 — —, *Gymnorhina*, 338, 363.
 — *tibicen*, *Cracticus*, 338, 348.
 — —, *Gymnorhina*, 338, 363.
tormenti, *Cracticus nigrogularis*, 375, 381.
torquatus, *Bulestes*, 383, 384, 385.
 —, — *torquatus*, 386, 396.
 —, *Cracticus*, 384, 390, 395.
 —, — *torquatus*, 385, 396.
 —, *Lanius*, 383, 384, 393, 394.
 — *argenteus*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 385, 396.
 — *cinereus*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 385, 390, 396.
 — *colei*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 386, 396.
 — *colleti*, *Cracticus*, 386, 396.
 — *ethelæ*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 385, 386, 396.
 — *leucopterus*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 385, 396.
 — *olindus*, *Bulestes*, 386, 396.
 — —, *Cracticus*, 385, 386, 396.
 — *torquatus*, *Bulestes*, 386, 396.
tregellasi, *Artamus*, 244, 245, 254.
 —, — *melanops*, 245, 246.
 —, *Austrartamus melanops*, 245.
 —, *Stipiturus malachurus*, 132, 133, 143, 145.
 —, *Tasmanornis humilis*, 31, 37.
tunneyi, *Cracticus quoyi*, 366.
turdoides, *Colluricincla*, 306.
Turdus badius, 278, 282, 287, 288.
 — *brachypterus*, 149, 150, 151.
 — *coraya*, 149, 150.
 — *harmonicus*, 276, 278, 282, 287.
 — *pallidus*, 279, 288.
 — *sordidus*, 257, 265.
 — *subcinereus*, 295.
 — *tenebrosus*, 258.
tweedi, *Sericornis lævigaster*, 16.
tyrannula, *Sericornis*, 29.
tyrannulus, *Sericornis*, 29.
 Uniform Grass-Wren, 190.
Vanga australis, 384, 394.
 — *cinerea*, 384.
 — *destructor*, 393.
 — *nigrogularis*, 374.
varia, *Amytis*, 163, 172, 174, 180, 182.
 —, *Amytornis*, 173, 180.
 —, *Diaphorillas textilis*, 169, 170, 182.
 Variable Crow, 423, 432.
 Variegated Wren, 95, 98.
varius, *Cracticus*, 374.
venustus, *Artamus*, 245, 247, 251, 253.
 —, — *melanops*, 245.
 —, *Austrartamus melanops*, 245.
versicolor, *Corvus*, 423, 426, 432.
 —, *Neostrepera*, 424, 429.

INDEX.

- versicolor*, *Strepera*, 405, 423, 428.
 — *arguta*, *Neostrepera*, 424, 434.
 — —, *Strepera*, 424, 433.
 — *centralia*, *Neostrepera*, 424, 425, 434.
 — *intermedia*, *Neostrepera*, 424, 429, 434.
 — —, *Strepera*, 424, 433.
 — *plumbea*, *Neostrepera*, 424, 429, 434.
 — —, *Strepera*, 424, 433.
 — *riordani*, *Neostrepera*, 407.
 — *versicolor*, *Neostrepera*, 424, 434.
 — —, *Strepera*, 424, 433.
 — *vieilloti*, *Neostrepera*, 424, 434.
 — —, *Strepera*, 424, 433.
victoriae, *Colluricincla harmonica*, 279, 288.
 —, *Dasyornis brachypterus*, 153.
 —, *Malurus melanotus*, 62, 66, 68.
vieilloti, *Neostrepera versicolor*, 424, 434.
 —, *Strepera versicolor*, 424, 433.
viridior, *Megathiza magnirostris*, 6.
 —, *Sericornis magnirostris*, 3, 4, 6.
vitiensis, *Myiolestes*, 309.

 Warbler, Black-headed Superb, 118.
 —, Scarlet-backed, 118.
 —, Wren, 100.
warreni, *Leggeornis elegans*, 103.
 —, *Sericornis maculata*, 21, 22, 27.
Wawguljelly, 135.
 Western Blue-breasted Wren, 99, 190.
 — Scrub-Wren, 25.
westernensis, *Stipiturus*, 132.
 —, — *malachurus*, 132, 140, 141, 145.
 Westralian Emu-Wren, 140.
 Whistling Jackass, 390.
 — Wick, 283, 286.
 White-backed Magpie, 346, 347, 349, 357, 358.
 — -browed Wood-Swallow, 232.
 — -cheded Grass-Wren, 209.
 — -rumped Wood-Swallow, 217, 220.
 — -throated Grass-Wren, 211.
 — -winged Butcher-Bird, 392.
 — - — Wren, 75, 79.
whitei, *Amytis*, 196, 197.
 —, *Amytornis*, 200, 204.
 —, *Colluricincla rufiventris*, 295, 296, 299, 300.
 —, *Diaphorillas*, 200.
 —, — *striatus*, 169, 200.
 —, *Maccoyornis broadbenti*, 158, 162, 164.
 —, *Malurus*, 61, 64, 66, 68, 69.
 —, — *melanotus*, 62, 67.
 —, *Mytisa striata*, 200.

whitei, *Sphenura broadbenti*, 158, 164.
 — *oweni*, *Diaphorillas*, 170, 204.
 — *rufa*, *Diaphorillas*, 204.
 — *rufus*, *Diaphorillas*, 171.
 — *whitei*, *Diaphorillas*, 170, 204.
wongani, *Hallornis leuconotus*, 83.
 Wood-Swallow, 257, 259, 260, 261, 262, 263.
 — - —, Black-faced, 244, 251.
 — - —, Black-vented, 249.
 — - —, Grey-breasted, 249, 251.
 — - —, Little, 269, 270, 271, 272.
 — - —, Masked, 226.
 — - —, White-browed, 232.
 — - —, White-rumped, 217, 220.
woodwardi, *Alphacincla*, 302.
 —, *Amytornis*, 209, 210, 211, 212.
 —, *Colluricincla*, 301, 302.
 —, *Diaphorillas*, 166, 211.
 —, *Magnamytis*, 211.
 — *assimilis*, *Alphacincla*, 302.
 — —, *Colluricincla*, 302, 303.
 — *didimus*, *Alphacincla*, 302, 303.
 — *dorothea*, *Magnamytis*, 209, 210.
 — *woodwardi*, *Alphacincla*, 302.
 Wren, Banded, 70, 71.
 —, Black and White, 86, 89.
 —, Black-backed, 61.
 —, Blue, 58.
 —, — and White, 81.
 —, — -breasted, 111, 113.
 —, Lambert's, 98.
 —, Long-tailed, 60.
 —, Lovely, 106.
 —, Purple-crowned, 125, 128.
 —, Red-backed, 116, 122.
 —, Red-winged, 99, 103, 104.
 —, Rufous-crowned, 147.
 —, Tasmanian Blue, 58.
 —, Textile, 187.
 —, Variegated, 95, 98.
 —, Warbler, 100.
 — - —, Lovely, 108.
 —, Western Blue-breasted, 99, 100.
 —, White-winged, 75, 79.
wyldei, *Sericornis frontalis*, 13.
 —, — *longirostris*, 8.

yorki, *Sericornis minimus*, 19.

zamba, *Colluricincla harmonica*, 280, 289.

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01571 2573

